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ABSTRACT

The effectiveness of psychotropic and antiepileptic drug treatment was investigated with approximately 2500 children receiving educational services in early childhood special education programs. The study consisted of three phases: phase 1 in which all teachers were surveyed to determine the prevalence of drug therapy and patterns of usage, phase 2 in which teachers completed medication questionnaires to determine teacher evaluation of drug effectiveness and problems perceived by teachers, and phase 3 in which parents of children receiving drug therapy were interviewed. Results are reported in terms of type and prevalence of drug treatment; parent reactions to drug treatment; teachers' experience, attitudes and training concerning drug therapy; and the role of the teacher in drug treatment. Questions, problems, and suggestions for teachers and parents are reviewed in the final section. Among 16 appendixes are sample parent questionnaires and a discussion guide for the development of a school policy on the use of drug therapy with school children. (CL)

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PSYCHOTROPIC AND ANTIEPILEPTIC DRUG TREATMENT IN EARLY CHILDHOOD SPECIAL EDUCATION

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—K.D.G.

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I.

INTRODUCTION

The use of psychotropic drugs for the management of learning and behavior problems in children has received considerable attention in recent years. These drugs (stimulants, major and minor tranquilizers, hypnotics and sedatives, and antidepressants) have been the subject of a number of concerns, such as: (1) the long-term effects of such drugs on physiological and behavioral development (Safer, Allen, & Barr, 1972; Weiss, Kruger, Danielson, & Elman, 1975), (2) the limited number of well controlled studies with children (DiMascio, Soltys, & Shader, 1970), (3) secondary emphasis on learning and behavioral criteria for evaluating drug effectiveness (Sprague & Werry, 1971, 1974), (4) interference of untoward reactions with teaching objectives (Sprague & Werry, 1974), (5) the misuse of these drugs by medical personnel (Freeman, 1970a; Solomons, 1973), and (6) the encouraged misuse by educators (Schrag & Divoky, 1975). Researchers and clinicians have also been interested in the development of non-drug therapies to be used in lieu of, or concomitantly with, drug therapy (Allyon, Layman, & Kandel, 1975; Douglas, 1975) and have investigated the role of the teacher in the drug regimen (Sprague & Gadow, 1976). Although a vast literature is available about the effects of these drugs on children, especially with respect to hyperactivity (HA) (Conners, 1974; Eisenberg & Conners, 1971; Freeman, 1970; Ross & Ross, 1976; Safer & Allen, 1976; Sleator & Sprague, in press; Sprague & Sleator, 1973. 1975; Sprague & Werry, 1971, 1974; Wender, 1971; Winchell, 1975), most of the data is from laboratory studies or statements about clinical experience from physicians who have treated large numbers of children. Very few studies have been conducted about how this therapeutic technique is implemented in natural settings by a number of different physicians, and the effect of this treatment modality on the child, family, and the school.

Anticonvulsant drugs have also received more attention in recent years. Concern has been expressed about the effects of chronic toxicity (Reynolds, 1975) and the effect of these drugs upon behavior, learning, and cognition (Crowther, 1967; Dekaban & Lehman, 1975: Reynolds, 1975; Stores, 1975), especially with young children (Dekaban & Lehman, 1975). Drug therapy is of interest to school personnel because psychotropic and antiepileptic drugs have a powerful effect upon behavior, large numbers of children are treated with medication for learning, behavior, and convulsive disorders (CD) (particularly children in special education programs), and teachers can play a valuable role in drug treatment (Sprague & Gadow, 1976).

Psychotropic drugs are prescribed for their effects on mood, thought processes, and behavior (Balter & Levine, 1969) in contrast to many other medications which are prescribed for physiological or biochemical purposes. Although a number of classification schemes for these drugs have been proposed (Leavitt, 1974; Usdin, 1970), the medications discussed in this paper have been grouped according to six categories proposed by Usdin and Efron (1972). These are psychostimulants, major tranquilizers, minor tranquilizers, antidepressants, hypnotics, and sedatives. Anticonvulsant drugs, as the name implies, are used for the management of seizures. These two groups of drugs are not mutually exclusive because many psychotropic drugs have anticonvulsant properties. In this discussion, drugs that are used primarily for seizures will be classified as anticonvulsants. It would be inappropriate, however, to infer the reason for which a drug is prescribed from its categorization. For example, the minor tranquilizer diazepam (Valium) may be used as an antianxiety agent (Honigfeld & Howard, 1973), sedative and hypnotic (Goodman & Gilman, 1975), and anticonvulsant (Livingston, 1972).

The therapeutic use of these drugs with young children is of particular interest for several reasons. First, the young child is particularly responsive to environmental impact (Bloom, 1964).

This has considerable importance for handicapped children enrolled in environmental enrichment programs. Early studies on the young mentally retarded (Kirk, 1958; Skeels, 1966; Skeels & Dye, 1939) as well as ameliorative programs for preschool special education children have borne out the effect of environmental impact on these children (Hunt, 1969; Karnes & Teska, 1974; Shearer & Shearer, 1972). Therefore, medication that either enhances or retards classroom performance and cognitive ability could have tremendous implications for later development. Because much emphasis has been placed on the importance of early intervention strategies for children with handicaps, developmental delays, and learning problems (Hunt, 1975; Jordan, Hayden, Karnes, & Wood, 1977), many cost-benefit questions may be raised about the role of drug treatment with children in early childhood special education programs (ECSE). Second, there are a limited number of well controlled studies about drug therapy with young children (DiMascio, 1971; DiMascio, Soltys, & Shader, 1970), and much research has placed a secondary emphasis on learning and cognitive performance as criteria for evaluating the effectiveness of drug therapy (Sprague & Werry, 1971, 1974). Finally, the restriction of certain medications to adults, more frequently to children six years of age or older, has resulted in the development of "therapeutic orphans," i.e., children for whom drugs determined safe and effective in adults are not recommended because little is known about their use in the pediatric age range (Shirkey, 1972). This has generated considerable concern in regard to the development of adequate research programs (Shirkey, 1972; Wilson, 1972). There is also concern over the extent to which these drugs are prescribed for young children and not adequately monitored (Bleyer, 1975), and the quasi-legal status of the package insert which may prevent or discourage the use of needed and effective therapeutic measures (Klein, 1974; Shirkey, 1971).

Although psychotropic and anticonvulsant drugs may be used for a number of childhood disorders including hyperactivity (HA), tics, separation anxiety, stereotyped behavior, phobias, psychosis, convulsive disorders (CD), aggressive outbursts, enuresis, autism, and cerebral palsy (Campbell, 1975a, 1975b; Conners, 1972; Denhoff, 1966; Freeman, 1970a, 1970b; Gittelman-Klein, 1975; Sleator & Sprague, 1976; Sprague & Werry, 1971, 1974), two disorders of particular interest with young special education children are HA and CD. Hyperactivity is the most common reason for psychiatric referral in children, and the disorder frequently responds to drug therapy, particularly with the stimulants (Safer & Allen, 1976; Sleator & Sprague, in press; Wender, 1971). The syndrome is often manifested in infancy or early childhood (Chess, 1960; Wender, 1971), and may be concomitant with a number of handicapping conditions, including mental retardation, cerebral palsy, brain damage, and CD (Chess, 1960; Freeman, 1970a; Laufer, Denhoff & Riverside, 1957; Ounsted, 1955; Wender, 1971). In like manner, CD are not only common among children but are primarily disorders of childhood (Livingston, 1972). The onset of seizures is greatest between birth and four years and during adolescence (Epilepsy Foundation of America, 1975). A number of drugs are available for the control of seizures (Livingston, 1972), and, as with HA, CD is often concomitant with other handicapping conditions, including mental retardation, cerebral palsy, HA, and brain damage (Baird, 1972; Livingston, 1972).

Hyperactivity and CD are similar because they are chronic disorders that typically respond to drug treatment, require long-term, closely monitored care, and require interaction between school, family, and physician for adequate treatment (Sprague & Gadow, 1976). Both HA and CD are considered primarily disorders of childhood and account for much of the long-term drug treatment with school-age children. By investigating both disorders in the same population, each provides a contrast to the other. Although CD are more securely couched in the medical profession than HA (no one would deny the validity of treating a child with uncontrolled fits), what is learned about the needs of CD children and shortcomings in their treatment may shed light on the problems of the HA child, his family, and physician. Such inquiry may also provide insight into the treatment of many children with chronic childhood disorders that require medical and psychological intervention.

The extent of psychotropic and anticonvulsant drug usage has been difficult to determine because very few prevalence studies are available. Krager and Safer (1974) surveyed school nurses in Baltimore County, Maryland, and reported that 1.73% of the children in elementary schools were receiving drug therapy for HA. This represented a 62% increase over prevalence figures reported three years earlier. Using fall enrollment figures for schools in the United States in 1974, Sprague and Gadow (1976) estimated that between 600,000 and 700,000 children in grades K-8 received drug treatment for HA. Gadow (Note 1) surveyed early childhood special education teachers in Illinois for the prevalence of psychotropic and anticonvulsant drug usage. Of the 1,936 children receiving educational services, 12.6% had received at least one of these medications during the school year. However, the disorders for which these drugs were prescribed were not ascertained. Although there is no dearth of data about the prevalence of CD (Epilepsy Foundation of America, 1975), very few studies have focused on the prevalence of drug treatment for CD per se.

The involvement of school personnel in the drug regimen for hyperactivity has also generated considerable interest. For purposes of discussion, the drug regimen can be said to consist of three phases: diagnostic, dosage adjustment, and follow-up (Sprague & Gadow, 1976). In the diagnostic phase, the child is referred for a medical evaluation, and, if the decision to use medication is made, the second phase is initiated. After receiving a trial of medication, dosage is adjusted until optimal therapeutic effect is achieved with minimal side effects. The follow-up phase consists of monitoring the effect of the medication on the child's behavior, periodic breaks in medication to determine the continued need for treatment, concomitant therapy, the termination of medication, and post medication monitoring. In reference to HA, a number of clinicians and researchers have stressed the importance of the involvement of teachers in the drug regimen (Conners, 1971a, 1973; Katz, Saraf, Gittelman-Klein, & Klein, 1975; Sprague & Gadow, 1976; Sprague & Werry, 1974; Wender, 1971). Because the disorder frequently cannot be diagnosed from behavior exhibited in a physician's office, the child's caretakers can play an important diagnostic role through evaluations on standardized rating scales (Sleator & von Neumann, 1974). For dosage adjustment, it has been clearly demonstrated that, in the case of stimulants, teachers are quite sensitive to subtle changes in dosage and the resulting effect on classroom performance (Sleator & von Neumann, 1974; Sprague & Sleator, 1973). In the follow-up phase, teachers can also monitor the effect of the medication, evaluate behavior during breaks in medication, help parents acquire behavior management skills, and, most important, continue to facilitate the child's development.

In like manner the teacher can help the physician in the drug regimen for CD (Livingston, 1972). This may include referring children suspected of having certain types of seizures, e.g., petit mal, evaluating the effectiveness of therapy as well as side effects, and, in the case of grand mal seizures, possibly managing the child and his peers if there is a seizure in the classroom. As with HA, CD may affect the child's entire development. Teachers, therefore, may also become involved in the child's social-emotional problems.

As with studies of the prevalence of drug treated disorders in school children, very little is known about the actual involvement of teachers in the drug regimen, although allegations of misconduct abound (Divoky, 1973; Hentoff, 1970; Schrag & Divoky, 1975). For the diagnostic phase, two surveys of elementary school teachers indicate that teachers are involved in the referral process and usually notify school staff members and parents of children they suspect as being HA (Bosco & Robin, 1976; Robin & Bosco, 1973). In regard to monitoring the effect of medication on the child's behavior, teachers report being asked to make evaluations of the child's performance (Gadow, Note 1; Robin & Bosco, 1973; Weithorn & Ross, 1975). However, teachers generally have very little direct contact with physicians concerning information about medication (Gadow, Note 1) or reporting the child's response to drug therapy (Robin & Bosco, 1973; Weithorn & Ross, 1975). Very little information is available on teacher participation in the follow-up phase of the drug regimen.

The adequacy of monitoring procedures has been called into question not only from surveys of teachers (Weithorn & Ross, 1975), but also from interviews with parents of children receiving medication for hyperactivity (Solomons, 1973). Solomons reported that contact with the physician was not frequent and considered only 55% of the children in the study to be adequately monitored, i.e., at least two contacts, office visit or telephone, in a six month period. Of those parents permitted by their physicians to alter the dosage, a significantly greater number were not monitored appropriately.

In order to characterize the use of medication with children in (early childhood special education) programs, the present study was designed with three phases to survey the teachers and parents of children receiving psychotropic and anticonvulsant drugs. In Phase One, a general questionnaire was mailed to all teachers (Gadow, 1976). The objectives were to: (1) determine the prevalence of drug therapy, disorders treated, medications prescribed, and the patterns of usage, (2) characterize teacher experience with children receiving medication and involvement in the drug regimen, (3) assess teacher attitude toward different role behaviors in the drug regimen for HA and CD, (4) describe teacher training about the use of medication for HA and CD and teacher involvement in drug therapy, and (5) identify problems and questions both teachers and parents have about medication (see Chart 1). For Phase Two, teachers completed medication questionnaires for each child reported to have received drug therapy during the school year. The objectives of this phase of the study were to: (1) describe teacher evaluation of the effectiveness of medication and extent of side effects, (2) describe actual teacher involvement in each phase of the drug regimen from data collected on each child, and (3) identify problems teachers encountered with children, parents, and physicians (see Chart 2).

CHART 1 PHASE ONE

BACKGROUND INFORMATION: Program, children, and teacher

EXPERIENCE WITH CHILDREN RECEIVING MEDICATION

ATTITUDE TOWARD INVOLVEMENT IN DRUG REGIMEN AND DRUG THERAPY

PREFERENCE FOR INTERACTION

SPECIFIC TRAINING AND ACQUIRED KNOWLEDGE

PROBLEMS, QUESTIONS, AND COMMENTS

DRUG DATA: Age, sex, race, medication, reason, on-off

CHART 2 PHASE TWO

INVOLVEMENT IN DRUG REGIMEN: Diagnosis, dosage adjustment, and follow-up

DRUG DATA

SOURCES OF INFORMATION

THERAPEUTIC AND SIDE EFFECTS

COMPLIANCE

DOSAGE ADJUSTMENT

PROBLEMS ENCOUNTERED

Although the teacher can provide valuable information about drug treatment (Gadow, 1976; Johnson & Prinz, 1976; Gadow, Note 1), more detailed information about the drug regimen must be obtained from either medical records (Loney & Ordona, 1975), physicians (Sandoval, Lambert, & Yandell, 1976; Sprague & Sleator, 1975), or from parents (Solomons, 1973). Therefore, a third phase was developed to conduct in-depth interviews with the parents of children who received drug treatment (Gadow, Note 2). The objectives of Phase Three were to: (1) gather information about the medication including dosage, when administered, reason for prescription, duration of therapy, and reasons for terminating medication, (2) describe parent evaluation of therapeutic effectiveness and side effects, (3) determine compliance, adequacy of monitoring procedures, and whether parents altered the dosage or gave extra medication on special occasions, and (4) identify problems parents encountered with the school and the physician (see Chart 3).

This survey is by no means a substitute for well-controlled laboratory research on the therapeutic effects and untoward reactions of psychotropic and antiepileptic drugs. Rather, it is an inquiry into how drug treatment is actually used with a large number of young children under the management of a number of different physicians, teachers, and parents.

CHART 3 PHASE THREE

DRUG DATA: When, how much, how often, how long, reason, and termination

THERAPEUTIC AND SIDE EFFECTS

REFERRAL

COMPLIANCE

MONITORING BY PHYSICIAN

PROBLEMS WITH SCHOOL AND PHYSICIAN

QUESTIONS

II.

METHODOLOGY

Early Childhood Special Education

In the spring of 1971, the Illinois General Assembly passed House Bills 322 and 323. House Bill 322 established learning disabilities as a handicapping condition for which school districts are required to provide appropriate educational services for affected children between the ages of 3 and 21 years. House Bill 323 lowered the age of eligibility for special education services from five to three years for all other handicapping conditions identified in the school code. These conditions include: socially maladjusted, emotionally disturbed, educable mentally handicapped, trainable mentally handicapped, speech defective, vision and hearing impaired, and physically or health impaired. The provision of educational services for 3-5 year-old handicapped children was made mandatory beginning July 1, 1972. However, the Illinois Office of Education made 1972-73 a year of planning for local school districts and special education cooperatives to develop a workable delivery-of-services model for these children. Early childhood special education programs were designed to be noncategorical. That is, children would not be labeled according to one of the state categories of exceptionality. This policy was adopted because accurate diagnostic instruments for young children were not available. These programs, therefore, were designed for children with a variety of learning problems, developmental delays, and handicaps ranging from mild to severe. (Preschool children who were blind, deaf, profoundly retarded, or physically handicapped were typically served in categorical programs.) School districts had the option of providing services either in the school (classroom) or exclusively in the home (home based). In either setting, state guidelines clearly specified the importance and role of parent participation in the planning and provision of educational services. By law, class size was limited to seven children, or ten if the teacher had an aide. Because special education administrative units would still be eligible for state reimbursement if ECSE classes met for only a half day, teachers with aides could work with two classes (maximum of twenty children) per day. A classroom and home-based model could be adopted if teachers were required to be in the classroom for only a half day.

Procedure

Special education programs for the 1,041 operating school districts in Illinois are directed by 85 administrative units including the City of Chicago, which is one of the units. Of these administrative structures, 20 are single school districts and 65 are joint agreements, i.e., consisting of a group of school districts in contractual agreement to provide special education services. The single school districts are typically located in larger urban centers and the joint agreements in thinly populated rural areas. When surveyed in 1975, of the 85 units, five provided ECSE services jointly with other administrative units and one had no program. The investigator contacted each of the remaining 79 administrative units by telephone and explained the survey to the director of special education, or, in a few cases, to the coordinator of ECSE programs. Each of the three phases of the survey was described as well as the measures for protecting the confidentiality of student records and the rights of the parents and teachers as research subjects. Following this initial telephone conversation, a cover letter (see Appendix A) and a complete description of the study (see Appendix B) were mailed to each administrator. approval for the study had been granted (either following the first conversation or in a follow-up call after receipt of the materials), the names and school addresses of the ECSE teachers were requested. Of the 79 units contacted, only two refused to participate in the study, preventing contact with five teachers. The City of Chicago did not respond to research requests although contacted several times, and the number of ECSE teachers could not be determined. Eight of the units required direct contact with a total of 35 superintendents or school principals from the school districts within the special education unit. Of these, five refused to participate, preventing contact with six teachers. Two units that approved the study failed to follow through, preventing contact with another seven teachers. Of the 286 teachers identified, permission was granted to contact 268 early childhood special education teachers and request their participation in the study.

After seeking the appropriate administrative approval, all teachers were mailed the *Early Childhood Medication Questionnaire* in April. The questionnaire was accompanied by a cover letter that explained that administrative approval had been granted and described the three phases of the study (see Appendix C). This letter also explained the protection of the rights of the children and parents involved in the study and the confidentiality of the data collected. Teachers also received the *Children's Medication Chart* (CMC) (Gadow & Sprague, 1975) which is described in greater detail below. The cover letter stated the CMC would be mailed to parents in the third phase of the study. Interested teachers could receive the results of the survey and a bibliography of articles and books concerning psychotropic and anticonvulsant drug therapy with children by completing an address label and a results coupon.

The *Early Childhood Medication Questionnaire* is divided into eight parts (see Appendix C). (1) First is a description of the teachers, the programs in which they teach, and the children. Items include teaching experience, degrees received, number, race, and sex of the children, number of classes per day, etc. (2) Next is medication information. Teachers are asked to list all children who are presently in their program, or who were enrolled for a minimum of four months if no longer in attendance, who received medication for learning, behavior, and convulsive disorders during the school year. Children are identified by age, race, sex, name of medication(s), and whether or not they are actively receiving drug therapy at the time of the survey. (The child's name is never reported by the teacher.) The questionnaire lists the trade names of 32 medications. Trade names were selected instead of generic names because most prescriptions are written by trade names (Silverman & Lee, 1974). The drugs were selected from previous surveys (Gadow, Note 1; Sprague & Sleator, 1973) and from discussions of clinical practice (Livingston, 1972). Teachers are encouraged to report drugs not listed on the questionnaire. Medications that were neither psychotropic nor anticonvulsant were dropped from the study, and children who were reported as receiving medication that was not from these two categories were also omitted from data analysis. Teachers also report nonprescription drug treatments for hyperactivity. (3) Third, teachers are asked to indicate if they have taught children who received medication for HA and convulsive disorders, to identify children who had seizures in the classroom, and to report interaction with parents and physicians about children and medication. (4) Fourth, role behaviors from the diagnostic, dosage adjustment, and follow-up phase of the drug regimen are listed, including both initiating and responding behavior on behalf of the teacher. Teachers are instructed to agree or disagree with the suggested interactions on a four point scale: strongly agree, agree, disagree, strongly disagree. They are asked to select an answer *closest* to their attitude even though they may not have had experience with some of the situations. A "does not apply" category was provided, however, to indicate no opinion. In a separate part they are also asked to indicate with whom they would prefer to interact—child's parent, child's doctor, or school staff member——in different aspects of the drug regimen. (5) Part five asks similar questions about the drug regimen for CD, and (6) presents questions about drug therapy in general. (7) Seventh, teachers report areas in which they have received specific training or acquired definite knowledge about HA, CD, medications, and involvement in the drug regimen. Four sources of information and training are listed: college, inservice training, other staff members, and personal experience. No training or knowledge about the items is indicated by circling "does not apply." (8) In the last section, teachers are asked to list problems, comments, and questions they and parents of the children in their classroom have about medication usage.

Teachers were instructed to return the questionnaire and results coupon by a stated date. A self-addressed, stamped envelope was enclosed. Teachers who failed to return the questionnaire on time were mailed a reminder letter. If teachers had not returned the materials two weeks after the first reminder was sent, a second reminder letter was mailed.

In Phase Two, the teacher received a cover letter (see Appendix E) and a medication questionnaire for each child who had received psychotropic and antiepileptic drugs at some time during the school year. In the same mailing, teachers also received Phase Three materials which included a parent permission letter complete with an introductory letter from the teacher, stamped envelope, a self-addressed, stamped envelope for the parent, and a *Permission Letter Log*. Each of these items is described in greater detail below. The cover letter explained how each of the items was to be used and described the Phase Two and Phase Three procedures.

Three different medication questionnaires were used in Phase Two: *Hyperactivity Questionnaire* (Appendix F), *Convulsive Disorder Questionnaire* (Appendix G), and *General Questionnaire* (Appendix H). One of these questionnaires was assigned to each child depending upon the reason for medication reported by the teacher in Phase One. Children for whom the diagnosis was neither HA nor CD, and children for whom the reason for medication was unknown to the teacher, were assigned the *General Questionnaire*. Teachers received both a *Hyperactivity* and *Convulsive Disorder Questionnaire* for hyperactive- convulsive disordered children. In order for the teacher to identify which child each medication questionnaire referred to, the description of the child reported in Phase One including age, sex, race, drugs received, reason for medication, and whether or not child was actually receiving drug treatment at the time was written at the top of each questionnaire. Teachers were instructed to make any necessary corrections in this description.

The three medication questionnaires have a number of similar items. All have questions about teacher participation in diagnosis, dosage adjustment, follow-up, and termination of drug treatment. Items involve the teacher's role in each of these aspects of drug therapy and with whom the teacher interacted. The role behaviors listed for HA and CD are different, reflecting interactions appropriate for each disorder. The questionnaires also collect data on how the teacher was informed about drug therapy, the name of the medication, observed side effects, whether dosage should be changed, duration of treatment, the child's handicaps, drug-free periods, and specific problems with that particular child and medication, his/her parents, and physician. The *Hyperactivity Questionnaire* has items about specific therapeutic effects, and the *Convulsive Disorder Questionnaire* contains specific questions about seizures and possible indices of toxicity.

In order to protect the identity of the child and the confidentiality of his/her records, the teacher addressed and mailed the permission letters to the parents. The letter explained that medication information was being collected about children in preschool programs in Illinois and that this information would be used, in part, to train teachers concerning the use of medication with children (see Appendix I). The permission letter stated that participation was completely voluntary, that if the parents decided to be in the study, they could withdraw at any time, and that no names would be used in data collection, only code numbers. A cover letter, signed by the teacher, was stapled to the permission letter (see Appendix J). The cover letter stated that the school was participating in this study and encouraged the parents to return the permission letter. To participate, parents completed the permission letter to include name, address, telephone number, time of day they preferred to be called, and signature, and mailed it to the investigator in a self-addressed, stamped envelope.

Mailing of the permission letter to the parent was at the discretion of the child's teacher. If for any reason the teacher felt the letter should not be sent, e.g., the subject of medication was "too sensitive," the letter was returned to the investigator. Information about the distribution of the permission letters was recorded in a *Permission Letter Log* (see Appendix K). Teachers were asked if the letter had been mailed, if not, why, and what other measures had been used to contact or inform parents about the study. Letters were mailed near the close of the school year.

Teachers were instructed to return the medication questionnaires, unused parent permission letters, and *Permission Letter Log* by a specific date. If the materials were not returned on time, the teachers were mailed a reminder letter followed by a second letter two weeks later if the questionnaires still had not been returned.

Within two weeks of receipt of the completed permission letter, each parent was mailed a cover letter and the *Children's Medication Chart* (CMC). The cover letter explained that an interviewer would call them within two weeks (see Appendix L). They were instructed to see if the medication(s) their child received during the school year was pictured in the CMC. The letter also asked parents to return the CMC at the completion of the interview in order that it could be sent to other parents. A self-addressed stamped envelope was enclosed.

The CMC consists of life-size, color reproductions of 31 different trade name products and one generic in various dosages and forms, for a total of 69 different capsules and tablets (see Appendix M). The inclusion of drugs in the CMC was based, in part, on previous surveys (Gadow, Note 1; Sprague & Sleator, 1973) and from descriptions of clinical practice (Livingston, 1972). Only those dosage forms considered appropriate for preschool and elementary school children were selected (*Physicians' Desk Reference*, 1975). The drugs pictured are arranged alphabetically by trade name and by increasing dosage for those drugs pictured in more than one dosage form. Below each drug picture is the trade name and the dosage in milligrams. A grid pattern numbered consecutively from one to 69 separates each drug form, permitting easy reference by number. With the exception of phenobarbital, trade name products were selected instead of generic because most prescriptions are written by trade names (Silverman & Lee, 1974).

Parents who returned a permission letter and had a telephone were interviewed. One parent who did not have a telephone was interviewed at the home of a friend. Using the *Parent Medication Questionnaire*, a trained interviewer questioned the mothers of children receiving medication about their child and drug treatment. Average length per interview was approximately 20 minutes. At the onset, the interviewer read a prepared statement describing who she was and the purpose of the call. Next, the parent was asked to locate the CMC and identify the medication(s) her child was receiving, or, if drug therapy had been terminated, the last medication(s) the child received when drug therapy was terminated. The exact identity of the drug by dosage and form was recorded by having the parent identify the drug by its number in the CMC. For medications not pictured, interviewers obtained a description of the drug including name, color, form, identification marks, and dosage if known. Identification of drugs not pictured was made by comparing the name and parent description with the drug information provided in the *Physician's Desk Reference* (1975). This was a simple matter for trade name products. Phenobarbital, a generic product, presented more problems if the parent did not know the dosage. In such cases, a dosage of 20 mg/5 cc, the only one reported for liquid phenobarbital, was assumed. Using the same procedure, other drugs the child had received during the school year were also recorded.

The *Parent Medication Questionnaire* consists of five sections (see Appendix N). Information about the drug(s) used during the school year, time of day and frequency of administration, reason for which drug was prescribed, duration of treatment for each drug, and reason for termination, if appropriate, are collected in part one. For each drug the child is receiving at the time of interview, or, if drug therapy has been terminated, the last medication(s) the child received, the parent is asked if the name of the drug is on the bottle. Data is also collected on the child's age, sex, and the name of the child's teacher. Parts two, three, and four concern HA, CD, and other disorders (GEN) respectively. Each of these sections contain questions about therapeutic response, side effects, physician referral, drug-free periods, and dosage. Information about physician monitoring, parent dosage adjustments, compliance, and problems with physician and school is gathered in the last part of the questionnaire.

At the close of the interview, the interviewer read a prepared statement thanking the mother for participating in the study, and requested the return of the CMC.

Return Rates

The return rates for all three phases of the study are presented in Table 2-1. In Phase One, a total of 268 teachers were mailed the *Early Childhood Medication Questionnaire*, of which 208 were returned for a return rate of 77.6%. All but one questionnaire was usable. Thirteen teachers were from team-teaching settings reporting the same children. To avoid duplication of data, information regarding children and medication were recorded for only one member of each team-teaching arrangement. On the first mailing, 177 (66%) questionnaires were returned, and 31 (34%) of those teachers who received reminder letters also returned questionnaires.

In Phase One there were 157 teachers who reported a total of 357 children who received drug treatment at some time during the school year. Because one response was late, medication questionnaires for 355 of these children were mailed to 156 teachers in Phase Two. Medication questionnaires were returned by 118 (75%) teachers providing data on 254 (71%) children who received psychotropic and antiepileptic drugs at some time during the school year. The return rates for the three different medication questionnaires are presented in Table 2-2. Returns for all four groups of medication questionnaires (HA, CD, HA-CD, and GEN) were greater than seventy percent, with the exception of HA (67%).

Because three special education administrative units did not permit the investigator to involve parents in the study, the number of teachers available for participation in Phase Three, i.e., mailing parent permission letters, was reduced to 148. This reduction in teachers also limited the number of children available for data collection to 337. Therefore, of the total number of teachers surveyed in Phase One, 94.3% were available for participation in Phase Three, and 94.4% of all children reported to have received medication were available for data collection.

From information in the *Permission Letter Logs* and returned permission letters, it is assumed that 112 (76%) teachers participated in Phase Three, making contact possible with the parents of 246 children (73% of the 337 children about whom data could be collected). However, permission letters were not sent to the parents of 29 (12%) of these children because there was no phone in the home, child had moved away or withdrawn from school, or teachers considered the parents to be high risks. As a result, the parents of 217 children received permission letters or were asked to participate, of which 115 (53%) returned permission letters. Two parents could not be interviewed because they did not have a telephone. Assuming none of the high risk parents (16) would not have responded, a conservative estimate of parent participation is 49%. Of the 112 teachers who participated in Phase Three by mailing parent permission letters, 74 (66%) had at least one parent who returned a letter to the investigator.

The return rate for Phase Three (53%) is not strikingly different from the response to the first mailing in Phase One (66%) and Phase Two (59%). If reminder letters had been mailed to the parents, participation in Phase Three might have increased appreciably. Using a procedure similar to the mailing of the initial parent permission letters, the teacher would receive a second *Permission Letter Log* for nonresponders. By matching the code number on the letter to the description of the child in the *Log*, the teacher could address and mail the letter to the appropriate parent, thereby protecting the identity of the parent and child. However, data collection for Phase One and Phase Two extended to the close of the school year, preventing a second and possibly a third contact with the parents.

Only a small percentage of the 246 parents available for contact were considered inappropriate for the study by their child's teacher. There was no significant difference in exclusion between

Table 2-1

Return Rates

Phase	Frequency	Percent
Phase One		
Teachers = 268	208	77.6
Phase Two		
Teachers = 156	118	75.2
Questionnaires = 355	254	71.3
Phase Three[a]		
Teachers = 148	112	75.7
Parents = 217	115	53.0

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[a] Parents were not mailed reminder letters.

Table 2-2

Return Rates for Medication Questionnaires

Types of Questionnaire	Mailed	Returned	Return Rate
Hyperactivity	174	117	67.2
Hyperactivity (children also receiving medication for convulsive disorders)	22	16	72.7
Total	196	133	67.9
Convulsive disorders	140	105	75.0
Convulsive disorders (children also receiving medication for hyperactivity)	22	16	72.7
Total	162	121	74.7
General	19	16	84.2
Grand Total	378	270	71.4

parents of HA and CD children. For only six of the parents was the study considered to be "too sensitive" by their child's teacher; three children were HA, two CD, and one HA-CD. For example, one teacher did not want to send a permission letter because "This child recently had a seizure, and it upset the parent so much that she is quitting work." The typical reason for not sending the letter was emotional problems in the home. One tacher said medication was a "touchy" subject for the parent. Interviewers characterized the mothers as very cooperative, interested in the study, and prepared to answer the questions discussed in the cover letter. In fact, a number of parents volunteered comments such as "I'm glad to see someone doing research on this," or "I'm delighted to help with anything like this. Maybe it will help some other child some day." Although not a part of the study, many parents openly discussed the problems created by their child's behavior, such as family and marital conflict.

Comparison between responses from the teacher medication questionnaires in Phase Two and parent interviews is possible for 92% of the HA children and 93% of the CD children reported in Phase Three. There were seven omissions, four of which were the return of *General Medication Questionnaires* which were mailed to teachers if the reason for medication stated in Phase One was not clearly identifiable as either HA or CD. Two were the result of unreturned medication questionnaires and one because classification as HA or CD was difficult to judge. For the HA-CD children there are eight omissions, two of which are unreturned medication questionnaires. Six of the HA-CD children were identified in Phase One as having only one disorder; four were CD and two HA. At least one teacher medication questionnaire was returned for all but three of the 110 children about whom data was collected from parent interviews.

Program Characteristics

Almost all (97%) of the ECSE programs had a classroom component, and most teachers taught either one (39%) or two (59%) classes per day. The mean number of children per class was 8.2 and 7.6 for the one and two classes per day teaching arrangements respectively. Most teachers (90%) said their programs were noncategorical; the remaining programs were described as trainable mentally handicapped, multiple handicapped, or hearing impaired. Although there has been much interest in integrating nonhandicapped or "model" children into ECSE programs (Snyder, Apolloni, & Cooke, 1977), only 14% of the teachers reported model children in their classroom. Most (81%) of the teachers were thirty years of age or less and only 25% had taught for more than four years. Because ECSE was provided on a statewide basis only two years prior to the study, teaching experience with preschool handicapped children was obviously limited. Most had either one (36%) or two (42%) years of teaching in ECSE. A third of the teachers had a masters degree.

Excluding "model" children, 2,559 children were either receiving early childhood special educational services at the time of the survey, or had been enrolled for four or more months if no longer attending school. Males outnumbered females almost two to one. The distribution of these children by race and sex is presented in Table 2-3. Although almost all ECSE programs participated in the study, including rural and urban areas, this population of children is predominantly white. When teachers were asked to characterize these children in terms of the severity of learning problems and degree of developmental delay, children were normally distributed on both dimensions. These were characterizations of each teacher's group of children as a whole; variation within each program, however, may have been greater.

Children's Medication Chart

The identification of the medication their child received during the school year was not a problem for the mothers interviewed. For almost all drugs, the name of the medication was on the bottle, and the drugs pictured in the CMC were representative of the medications prescribed for CD and HA. A total of 226 drugs were reported, of which 46 (20%) are not pictured in the CMC. However, only 17 (8%) are not pictured in another form and/or dosage. Of the 29 drugs not pictured but represented in another form in the CMC, 27 are liquids and two are larger dosages (Deaner, 100 mg). Along with omitting certain drugs, 31 of the 69 drug forms pictured in the CMC are not included in parent reports. However, only 11 (eight different drugs) are not reported in any other dosage and/or form. Several parents asked if they could keep the CMC. One mother said, "We go to parent groups and we will...talk about these drugs and some people don't always know the names." Another wanted to tape the CMC to her medicine cabinet to help her keep straight the psychotropic drugs that she, her husband, and three of her five children were receiving.

Table 2-3

Distribution of the Total Population of Early Childhood Special Education Children by Race and Sex

(Children = 2,559)

Sex	Frequency	Percent
White males	1,535	60.0
Black males	114	4.5
Other males	31	1.2
Total	1,680	65.7
White females	791	30.9
Black females	76	3.0
Other females	12	.4
Total	879	34.3
Grand total	2,559	100.0

III.

TYPE AND PREVALENCE OF DRUG TREATMENT

Of the 2,559 children reported to have received educational services in early childhood special education programs, 357 had received at least one psychotropic or anticonvulsant drug at some time during the school year, for a prevalence rate of 14.0%. This is not significantly* different from the 12.6% prevalence figure of a year earlier (Gadow, Note 1). Unfortunately, there are no other comprehensive studies of psychotropic and anticonvulsant drug usage with either special education or non-special education populations to which these data can be compared. For specific disorders, the prevalence of drug therapy was 7.9% for hyperactivity and 6.6% for convulsive disorders (See Table 3-1). Excluding children who received medication for both HA and CD (1.1%), the prevalence for HA is 6.8%. This is considerably higher than the 1.7% prevalence figure for drug therapy and HA among elementary school children reported by Krager and Safer (1974). However, they also reported that in elementary schools with special education classes for children with learning and behavior disorders the prevalence figure was 2.5%. No data are available on special education classes separate from general school populations.

Description of Children

Table 3-2 presents a description of the children for whom drug data were collected in Phase One and Phase Three in terms of age, race, sex, and whether they were actively receiving medication at the time of the survey. Most of the children in Phase One were 4–6 years of age near the close of the school year and they were predominantly white. When surveyed, 15% of the children had ceased to receive medication. Calculating prevalence of medication usage from children actively receiving medication at time of survey would have resulted in a prevalence rate of 11.5%.

The sample of children about whom information was collected in Phase Three are quite similar to Phase One children reported to have received drug therapy in terms of age, sex, race, and whether on or off medication near close of the school year. Differences between the two phases in terms of characteristics of the children by disorder are modest. For HA, there are 5.7% more males and 14% more children off medication in Phase Three than in Phase One. However, when adjustments are made for the children on drug-free periods and termination of drug therapy after Phase One data was collected, the difference in the termination of medication is only 2.5%. For CD children, there are 2% more males and 3.4% fewer children off medication in Phase Three than in Phase One. There are only slight differences in age and race for both groups.

Sex Differences

Several sex differences are apparent from the data. First, almost twice as many males were reported to have received educational services. Other surveys of special education children have also reported a higher prevalence of males (Bentzen, 1963; Morse, Cutler, & Fink, 1964). Second, although there was no significant difference between the percent of males and females that received drug treatment, a significantly greater number of males received drug therapy for HA (See Figure 3-1). The higher prevalence among males for this disorder has been clearly documented

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*All indications of significant differences are at least at the .05 level. The actual figures for statistical significance in Phase One and Phase Three data are given elsewhere (Gadow, 1976; Gadow, Note 2).

Table 3-1

Prevalence of Drug Treated Disorders in Early Childhood Special Education Programs[a]

(Children = 2,559)[b]

Disorder	Frequency[c]		Percent	
Hyperactivity	175	(203)	6.84	(7.93)
Convulsive disorders	140	(168)	5.47	(6.56)
Hyperactivity and convulsive disorders[d]	28		1.09	
Other	18		.70	
Total[e]	361		14.10[f]	

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[a] Tabulated from the reports of early childhood special education teachers (N=207).

[b] Total number of children in early childhood special education programs represented in the survey.

[c] Numbers in parentheses are the prevalence values when children receiving drug therapy for both hyperactivity and convulsive disorders are not partialled out.

[d] Children received drug therapy for both hyperactivity and convulsive disorders.

[e] Totals are inflated because 3 children received drugs for more than one disorder.

[f] Of all the children in the survey, 14.0% had received at least one psychotropic or anticonvulsant drug at some time during the school year.

Table 3-2

Comparison of Children's Characteristics Between Phase One and Phase Three

Characteristic	Phase One (Children=358)[a]		Phase Three (Children=112)	
	F	%	F	%
Sex				
Male	249	69.6	83	74.1
Female	109	30.4	29	25.9
Age in years				
3	31	8.7	12	10.7
4	90	25.1	37	33.0
5	148	41.3	40	35.7
6	72	20.1	19	17.0
7 or more	17	4.8	4	3.6
Race	(children=356)		(children=110)	
White	333	93.5	105	95.5
Black	16	4.5	4	3.6
Other	7	2.0	1	.9
On or off medication when surveyed[b]	(children=357)			
On	295	82.6	91(96)	81.3(85.7)
Off	54	15.1	21(16)	18.7(14.3)
Uncertain	8	2.3	0	0.0
Disorder[c]				
Hyperactivity	175	48.9	52(51)	46.4(45.5)
Convulsive disorder	140	39.1	44(46)	39.3(41.1)
Hyperactivity-Convulsive Disorder	28	7.8	14(11)	12.5(9.8)
Other	9	2.5	2(4)	1.8(3.6)
Unknown	6	1.7	0(0)	0.0(0.0)

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[a] Smaller n's indicate missing data.

[b] Numbers in parentheses are the values when adjustments are made for drug-free periods and late terminations of drug therapy.

[c] Numbers in parentheses are the values when adjustments are made using the reason for drug therapy reported in Phase One of the survey.

(Chess, 1960; Stewart, 1970; Wender, 1971). Third, a significantly greater number of females were reportedly receiving drug therapy for CD. This fact is more difficult to account for in that most (if not all) CD are distributed equally across both sexes with a possibly greater prevalence among males for certain types, except petit mal which is more common among females (Livingston, 1972). One explanation for this difference is the possibility that the females selected for special education placement are more severely handicapped, manifesting a proportionately higher prevalence of CD. There is support for this notion when one considers that: (1) male development is more variable, and (2) is delayed in comparison to the female (Hutt, 1972; Singer, Westphal, & Niswander, 1968). Therefore, screening and placement procedures may select out more males, perceiving females as less delayed in comparison. In regard to preschool education, Hutt (1972) observed that this may be an important concern because females "...may be (at) a considerable disadvantage since, by the age of five years, they have passed through more of their formative and critical periods in development than have boys" (p. 187).

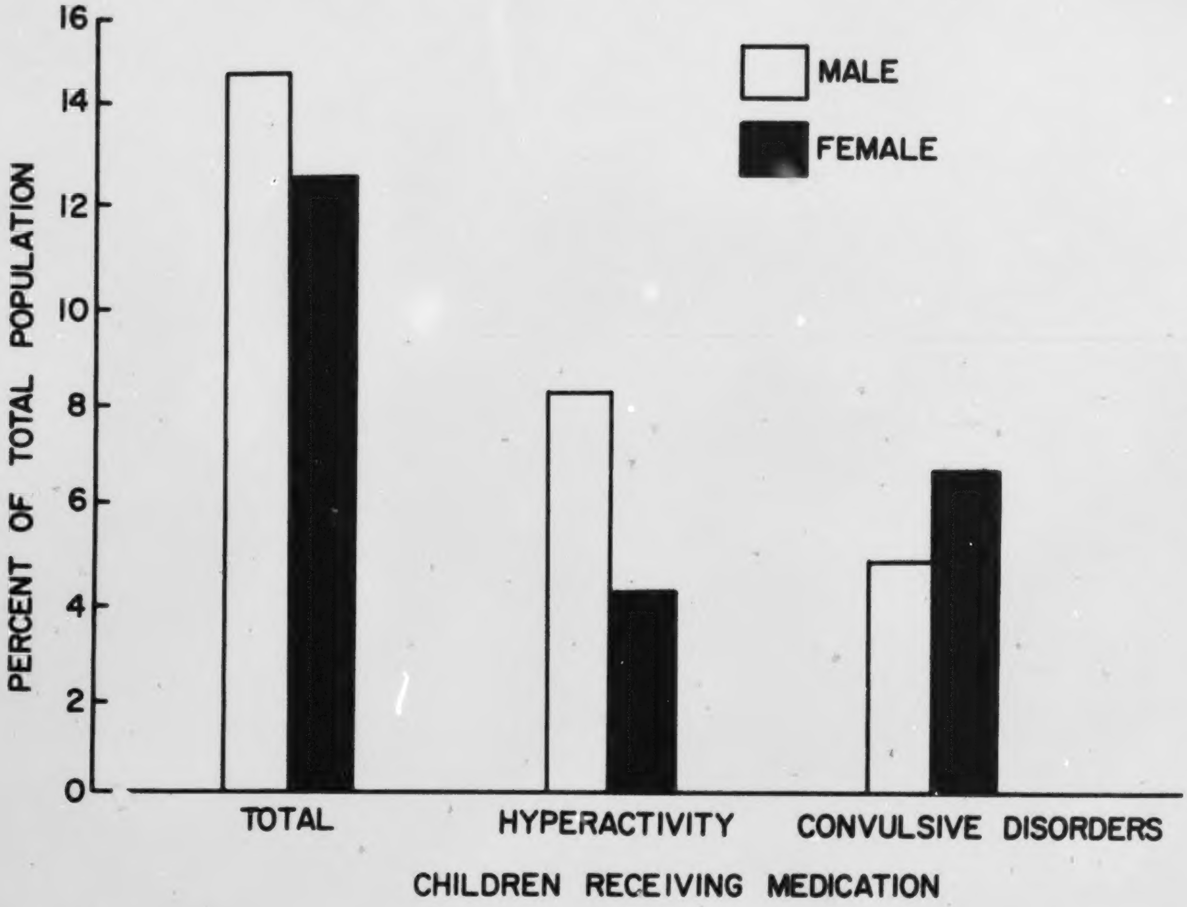

Fig.3-1. Prevalence of drug treatment by sex.

Table 3-3

Prevalence of Specific and Group Psychotropic and Anticonvulsant Drug Usage in Early Childhood Special Education Programs[a]

(Children = 2,559)[b]

Generic Name	Trade Name	Frequency[c]	Percent
I. Stimulants		(147)	
Methylphenidate hydrochloride	Ritalin[d]	126	4.92
Dextroamphetamine sulfate	Dexedrine	13	.51
Magnesium pemoline	Cylert[e]	6	.23
Deanol	Deaner	1	.04
Amphetamine sulfate	Benzedrine	1	.04
II. Anticonvulsants		(148)	
Diphenylhydantoin sodium	Dilantin, Ekko	104	4.06
Primidone	Mysoline	26	1.02
Methsuximide	Celontin	5	.20
Acetazolamide	Diamox	3	.12
Ethosuximide	Zarontin	3	.12
Carbamazepine	Tegretol	3	.12
Ethotoin	Peganone	2	.08
Mephenytoin	Mesantoin	1	.04
Phensuximide	Milontin	1	.04
III. Hypnotics & Sedatives		(107)	
Phenobarbital		92	3.60
Mephobarbital	Mebaral	10	.39
Metharbital	Gemonil	3	.12
Sodium butabarbital	Butisol	1	.04
Chloral hydrate		1	.04
IV. Major Tranquilizers		(36)	
Thioridazine	Mellaril	26	1.02
Chlorpromazine	Thorazine	3	.12
Clorazepate dipotassium	Tranxene[f]	2	.08
Haloperidol	Haldol[g]	2	.08
Trifluoperazine hydrochloride	Stelazine[h]	2	.08
Piperacetazine	Quide[i]	1	.04
V. Minor Tranquilizers		(34)	
Diazepam	Valium	26	1.02
Hydroxyzine hydrochloride	Atarax	6	.23
Hydroxyzine pamoate	Vistaril	2	.08
VI. Antidepressants		(15)	
Imipramine hydrochloride	Tofranil[j]	12	.47
Nortriptyline hydrochloride	Aventyl[k]	3	.12
VII. Miscellaneous		(25)	
Unspecified drugs		15	.59
Diphenhydramine hydrochloride	Benadryl	7	.27
Hydrocortisone	Cortef	1	.04
Prednisone		1	.04
Levodopa		1	.04
Total[m]		512	20.01

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[a] Tabulated from children reported to have received at least one psychotropic or anticonvulsant drug at some time during the school year (n=358).

[b] Of the total number of children represented in the survey, 14.0% were reported to have received drug therapy.

[c] Numbers in parentheses indicate values for drug categories.

[d] "Ritalin should not be used in children under six years, since safety and efficacy in this age group have not been established (Physician's Desk Reference, p. 710)."

[e] "Cylert is not recommended for children under six years of age since safety and efficacy in this age group have not been established (package insert, 1975)."

[f] "Because of the lack of sufficient clinical experience, Tranxene (clorazepate dipotassium) is not recommended for use in patients less than 18 years of age (Physician's Desk Reference, 1975, p. 543)."

[g] "Safety and effectiveness in children have not been established; therefore, this drug is not recommended for use in the pediatric age group (Physician's Desk Reference, 1975, p. 989)."

[h] Only dosages listed in regard to pediatric use are for psychotic children between 6 and 12 years of age (Physician's Desk Reference, 1975, p. 1403).

[i] "The use of Quide (piperacetazine) in children under 12 years of age is not recommended because safe conditions for its use have not been established (Physician's Desk Reference, 1975, p. 758)."

[j] "Administration of the drug in pediatric conditions other than enuresis or in children younger than 6 years is not recommended (Physician's Desk Reference, 1975, p. 807)."

[k] "This drug is not recommended for use in children, since safety and effectiveness in the pediatric age group have not been established (Physician's Desk Reference, 1975, p. 912)."

[l] "The safety of Larodopa under the age of 12 has not been established (Physician's Desk Reference, 1975, p. 1242)." Larodopa is one trade name for levodopa.

[m] Totals are inflated because 109 children were reported to have received more than one drug during the school year.

Type of Drug

The prevalence of specific psychotropic and anticonvulsant drug usage in early childhood special education programs is presented in Table 3-3. The trade names presented in the table are the same as those listed on the questionnaire, plus all additional ones reported by teachers. The percent of children in the total population that received the six most frequently prescribed drugs are as follows: Ritalin (4.92%), Dilantin (4.06%), phenobarbital (3.60%), Mysoline (1.02%) Mellaril (1.02%), and Valium (1.02%). These six medicationa account for 78% of all reported drugs.

Of the 34 different medications reported in this study, the package inserts for nine of these drugs contained caveats regarding their use with children under six years of age. One of the medications, methylphenidate (Ritalin), was prescribed for 4.9% of all the children in early childhood special education programs. Although clinicians have discussed the use of methylphenidate with infants, toddlers, and preschoolers (Nichamin, 1972; Renshaw, 1974), the author has encountered only two published well-controlled studies on the use of methylphenidate with HA preschool children (Conners, 1975a; Schleifer, Weiss, Cohen, Elman, Cvejic, & Kruger, 1975). Conners (1975a) commented that, "Although significant drug effects were noted, it is the impression from the study that the results are more variable and unpredictable than in similar treatment of older children with minimal brain dysfunction" (p. 74). Schleifer et al. (1975) also reported differences between the response of preschoolers and older children to methylphenidate. Although mothers perceived the children as less HA on medication, the authors also report the following:

> Clinical observations indicated that methylphenidate very often had a negative effect on the child's mood and also on his relationship with peers, causing less social behavior and interaction. These almost always appeared and were reported as unwanted side effects of the drug, and included sadness, irritability, excessive hugging and clinging, and increased solitary play, as well as the more usual side effects of poor appetite and difficulty getting to sleep, and were determinate factors in the psychiatrist and the mothers deciding that all but three of the 28 children discontinue medication after the experiment ended. (p. 49)

When the safety and efficacy of prescribed drugs are in question, cooperation between parent, teacher, and doctor *and* adequate monitoring procedures would appear to be judicious. Because Ritalin has been used for the management of HA since 1956 (Safer & Allen, 1976) and in view of the ethical dilemma of denying a young child an effective treatment (Klein, 1974; Shirkey, 1971), it would be inappropriate to make the inference that the use of this agent with preschool children is a case of mismanagement. A number of drugs prescribed for children in ECSE programs carry similar warnings about use with young children (Gadow, 1976), but this uncertainty should be an impetus for adequate monitoring procedures. It is interesting to note that Cylert, which also carries a caveat about use with children under six years of age, (Abbott, 1975), was introduced on the market with a vigorous advertising campaign in the spring of 1975, the same time ECSE data were being collected. Although it had just been made available, it was being picked up in our preschool data collection. There appears to be a definite need for drug research programs with this age group (Shirkey, 1972; Wilson, 1972).

Of the 357 children who received drug treatment at some time during the school year the percent who received the six most frequently reported drugs is presented in Figure 3-2. The percentage of the total drug volume (497 drugs) accounted for by each of the six drug categories is presented in Figure 3-3. The anticonvulsant drug category includes only those drugs used primarily for management of CD. (Phenobarbital was grouped with the hypnotics and sedatives.)

The drugs most frequently reported in Phase Three by the parents of children who received drug treatment are presented by dosage and form in Table 3-4. These 23 drug forms account for 80% of all reported medications. Those drug forms marked with an asterisk are not pictured in the *Children's Medication Chart* (CMC), but only Cylert was not pictured in another dosage or form. These omissions constitute only 15.6% of the total 180 drug mentions.

Drugs for Hyperactivity

A variety of different drugs were prescribed for HA, but the most frequent were stimulants, which accounted for 63% of the total drug volume (See Table 3-5). By far the most frequently prescribed drug was Ritalin, which was administered to 64% of the children at some time during the school year. The three most frequently reported drugs for the management of HA were Ritalin, Mellaril, and Dilantin, accounting for 73% of all reported medications. The figures for the percent of children who received Ritalin, percent of stimulant drugs, and total drug volume for Phase Three are quite similar to Phase One. Excluding drugs terminated prior to the most recent drug regimen and drugs administered only in the evening, the prevalence of drug treatment by drug categories for Phase Three is as follows: stimulants (71.2%), major tranquilizers (9.6%), minor tranquilizers (7.7%), and other (13.5%). (With these restrictions, only one child was receiving more than one drug at a time for HA.)

Krager and Safer (1974) reported that of the HA elementary school children receiving drug treatment, 88.2% were administered stimulants. The use of Mellaril was higher for the preschool children (10.9%) than for the elementary age (2.6%). Aside from the obvious differences in age,

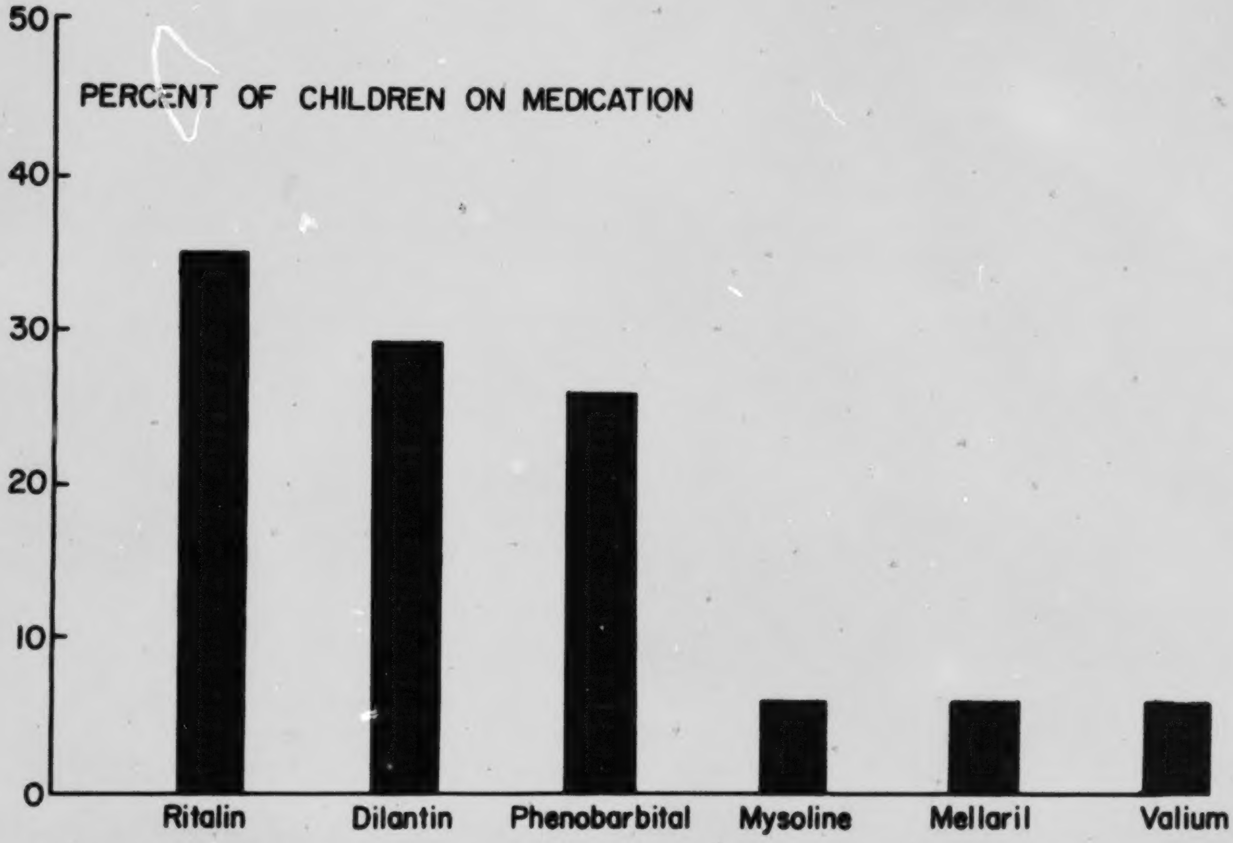

Fig. 3-2. The six most frequently prescribed drugs during the school year.

Table 3-4

Most Frequently Reported Drug Forms[a]

Trade Name[b]	Form	Dosage[c]	Frequency	Percent
Dilantin Infatabs	tablet	50 mg	33	14.7
Ritalin	tablet	5 mg	27	12.0
phenobarbital	tablet	15 mg	13	5.8
Mysoline	tablet	50 mg	9	4.0
phenobarbital*	liquid	20 mg/5 cc	9	4.0
phenobarbital	tablet	30 mg	9	4.0
Ritalin	tablet	10 mg	9	4.0
Mellaril	tablet	10 mg	8	3.6
Valium	tablet	2 mg	8	3.6
Tofranil	tablet	10 mg	7	3.1
Cylert*	tablet	37.5 mg	5	2.2
Mebaral	tablet	32 mg	5	2.2
Mysoline	tablet	250 mg	5	2.2
Atarax Syrup*	liquid	10 mg/5 cc	4	1.8
Pediatric-Dilantin-30 Suspension*	liquid	30 mg/5 cc	4	1.8
Valium	tablet	5 mg	4	1.8
Celontin Kapseals	capsule	150 mg	3	1.3
Dexedrine	tablet	5 mg	3	1.3
Dexedrine Elixir*	liquid	5 mg/5 cc	3	1.3
Diamox	tablet	250 mg	3	1.3
Mebaral	tablet	50 mg	3	1.3
Tegretol	tablet	200 mg	3	1.3
Vistaril Oral Suspension*	liquid	25 mg/5 cc	3	1.3
Other			45	20.0
Total			225	100.0

---

[a]Tabulated from parent interviews.

[b]All are trade names with the exception of phenobarbital. Asterisk (*) indicates a drug form not pictured in the Children's Medication Chart.

[c]Dosages for tablets and capsules are in milligrams (mg), liquids are in mg per teaspoon (5cc), and ¼ grain (gr) and ½ gr dosages for phenobarbital were converted to 15 mg and 30 mg respectively.

Table 3-5

Medication Reportedly Used in the Management of Hyperactivity[a]

(Children = 175)

Generic Name	Trade Name	Frequency[b]		Percent
I. Stimulants			(130)	
Methylphenidate hydrochloride	Ritalin	112		64.00
Dextroamphetamine sulfate	Dexedrine	11		6.29
Magnesium pemoline	Cylert	5		2.86
Deanol	Deaner	1		.57
Amphetamine sulfate	Benzedrine	1		.57
II. Major Tranquilizers			(23)	
Thioridazine	Mellaril	19		10.86
Chlorpromazine	Thorazine	2		1.14
Haloperidol	Haldol	1		.57
Piperacetazine	Quide	1		.57
III. Minor Tranquilizers			(9)	
Diazepam	Valium	4		2.28
Hydroxyzine hydrochloride	Atarax	3		1.71
Hydroxyzine pamoate	Vistaril	2		1.14
IV. Antidepressants			(7)	
Imipramine	Tofranil	6		3.43
Nortriptyline hydrochloride	Aventyl	1		.57
V. Hypnotics and Sedatives			(7)	
Phenobarbital		5		2.86
Mephobarbital	Mebaral	1		.57
Sodium butabarital	Butisol	1		.57
VI. Anticonvulsants			(22)	
Diphenylhydantoin sodium	Dilantin	20		11.43
Primidone	Mysoline	2		1.14
VII. Miscellaneous			(8)	
Diphenhydramine hydrochloride	Benadryl	5		2.86
Unknown		3		1.71
Total[c]		206[d]		117.71

---

[a]Tabulated from the reports of early childhood special education teachers.

[b]Numbers in parentheses represent values for drug categories.

[c]Totals are inflated because 28 children were reported to have received more than one medication for hyperactivity during the school year.

[d]Medication reported as being used for both hyperactivity and another disorder (n=4) and those for which no distinction was made between hyperactivity and convulsive disorders (n=9) are excluded.

developmental delay, and handicaps, the Krager & Safer drug survey data were collected in 1973, two years prior to the preschool study. This accounts, in part, for the omission of certain types of drugs used, e.g., Cylert and Tofranil, from the elementary school survey. Because it is now generally believed that Dexedrine produces more undesirable side effects than Ritalin (Conners, 1971b; Connors, 1976; Safer & Allen, 1973a), changes in prescribing behavior may account for the relatively greater difference in the use of Dexedrine (29.2% for the 1973 study and 6.3% for 1975) compared to Ritalin.

An argument has been made for the efficacy of a number of different drugs in the treatment of HA (Fish, 1971). Although a great deal of information has been generated about the stimulants (Safer & Allen, 1976; Ross & Ross, 1976; Sprague & Werry, 1974; Wender, 1971), one may seriously question how the other drugs prescribed for this disorder would fare under similar scrutiny, particularly in regard to the enhancement or impairment of cognitive performance and learning.

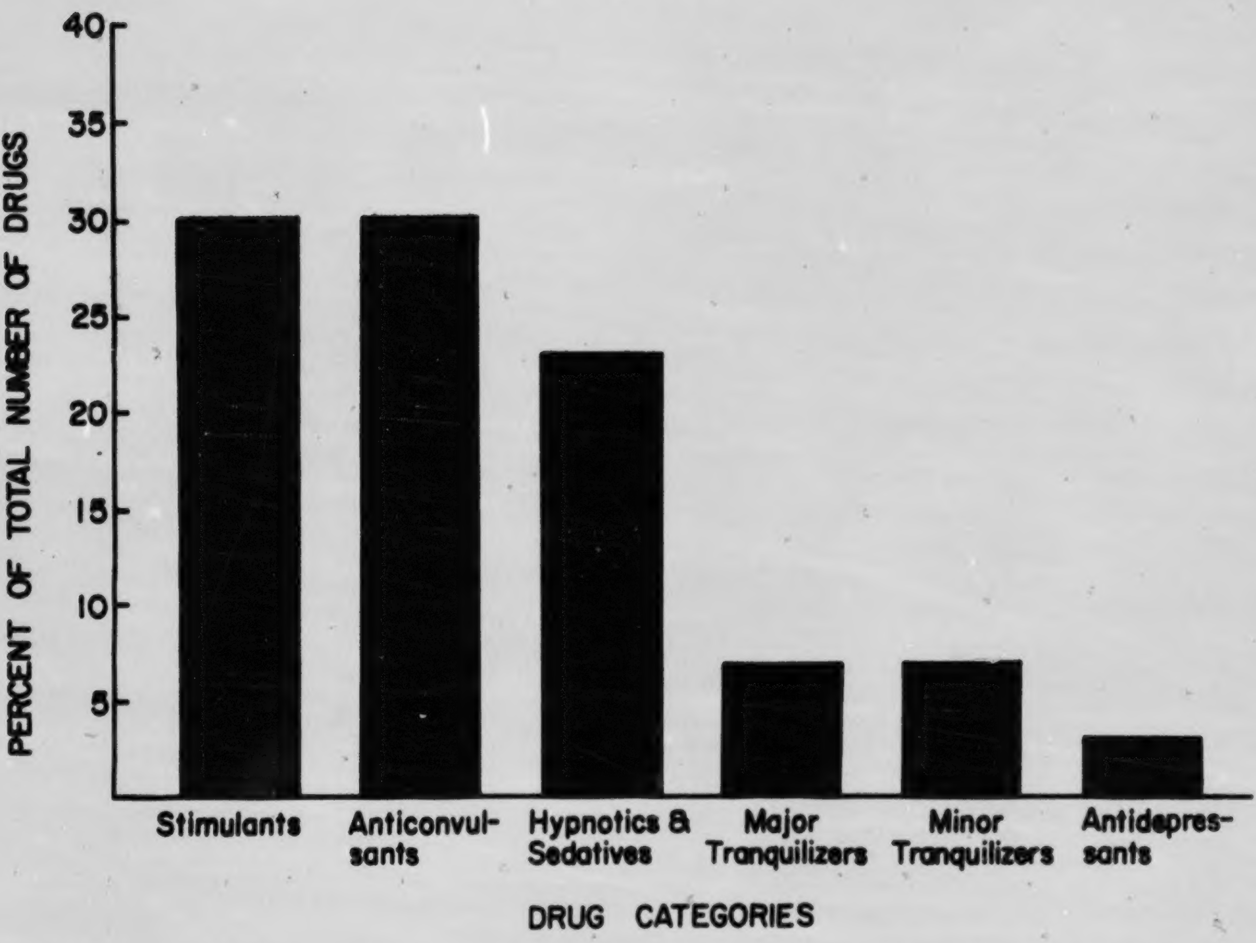

Fig.3-3. Distribution of the total number of drugs prescribed during the school year.

Drugs for Convulsive Disorders

The three most frequently prescribed drugs for CD were Dilantin, phenobarbital, and Mysoline (see Table 3-6). Because the different types of convulsive disorders respond best to different drugs (Livingston, 1972), the relative frequency of specific drugs also reflects, to a certain degree, the prevalence of different convulsive disorders (Epilepsy Foundation of America, 1975). Grand mal seizures may have an onset at any age and are the most common type of seizure reported for over 80% of the people with epilepsy. The drugs of first choice by safety and efficacy are phenobarbital, Mysoline, and Dilantin. Mebaral may be used as an alternative to phenobarbital if the latter produces marked drowsiness or HA. True petit mal (absence) seizures are not common, with a prevalence of only 2–3% of all epileptics and 6–12% of children with seizures. The age at onset of petit mal seizures is typically between four and eight years. The drugs of first choice are Zarontin and Tridione, but if response is unsatisfactory, other succinimides (Celontin and Milontin) or Paradione may be used. Psychomotor seizures are quite uncommon among young children. The drugs of first choice for this condition are similar to grand mal agents with the addition of Tegretol as possibly the most effective. Livingston divides myoclonic epilepsy (petit mal variant, salaam spells, akinetic seizures, Lennox-Gastaut syndrome) into two groups: myoclonic epilepsy of infancy and myoclonic epilepsy of older children. The typical age at onset of seizures for that of infancy is between three and nine months, while the onset for older children is between three and seven years. The disorder is typically concomitant with mental retardation, is usually severe, and is frequently refractory to drug treatment. The prognosis is exceedingly poor. For infants, intramuscular injection of ACTH (corticotropin) and oral corticosteroids (cortisone or prednisone) may be instrumental in seizure control. Benzodiazepines, e.g., Valium, may also be useful in seizure control as well as a newly approved agent, Clonopin (clonazepam) (Medical Letter, 1976). Livingston prefers the ketogenic diet for the treatment of myoclonic epilepsy, especially for children between two and five years of age. Because it was impractical to gather diagnostic data on the children, the anticonvulsant drugs reported in this study could not be paired to the different types of convulsive disorders.

A comparison of the total drug volume for HA and CD by drug category is presented in Figure 3-4. The two disorders differ considerably in the type of drug but there is some overlap for anticonvulsants (primarily Dilantin), hypnotics and sedatives (primarily phenobarbital), and minor tranquilizers (primarily Valium). A number of other differences, aside from the specific medications prescribed, are evident from the pattern of medication usage. Children receiving drug therapy for HA receive fewer medications in combination, fewer trial drugs, and less medication during the whole school year, and are more apt to have drug therapy discontinued during the course of the school year. These differences are described in greater detail in Chapter 4.

Drugs for Hyperactive-Epileptic Children

About 8% of the children receiving medication were receiving drug therapy for both HA and CD. It is not unusual for these disorders to appear concomitantly (Ounsted, 1955), and this is particularly so with epileptics who are also mentally retarded (Eyman, Moor, Capes, & Zachofsky, 1970). Millichap (1969) suggests Ritalin for HA and Dilantin for seizures as the drugs of first choice in children with both disorders. Phenobarbital may cause HA in children (Livingston, 1972), which may be a greater handicap than the seizures (Schain, 1972), and is clearly contraindicated for the management of seizures in children who are also HA (Millichap, 1969).

The drugs reportedly used for the management of HA in children with CD are presented in Table 3-7. Medications prescribed for HA and hyperactive–convulsive disordered children are quite similar, with Ritalin being the drug of choice. However, the use of major tranquilizers in the management of HA was higher for HA–CD children in both Phase One and Phase Three.

Table 3-6

Medication Reportedly Used in the Management of Convulsive Disorders[a]

(Children = 140)

Generic Name	Trade Name	Frequency[b]	Percent
I. Anticonvulsants		(90)	
Diphenylhydantoin sodium	Dilantin, Ekko	59	42.14
Primidone	Mysoline	19	13.57
Methsuximide	Celontin	3	2.14
Acetazolamide	Diamox	3	2.14
Ethosuximide	Zarontin	2	1.43
Ethotoin	Peganone	2	1.43
Phensuximide	Milontin	1	.71
Mephenytoin	Mesantoin	1	.71
II. Hypnotics & Sedatives		(86)	
Phenobarbital		76	54.29
Mephobarbital	Mebaral	7	5.00
Metharbital	Gemonil	3	2.14
III. Tranquilizers (Major & Minor)		(12)	
Diazepam	Valium	11	7.86
Clorazepate dipotassium	Tranxene	1	.71
IV. Miscellaneous		(17)	
Carbamazepine	Tegretol	3	2.14
Hydrocortisone	Cortef	1	.71
Prednisone		1	.71
Levodopa		1	.71
Unknown		11	7.86
Total[c]		205[d]	146.40

---

[a] Tabulated from the reports of early childhood special education teachers.

[b] Numbers in parantheses represent values for drug categories.

[c] Totals are inflated because 50 children were reported to have received more than one medication for the management of convulsive disorders during the school year.

[d] Medication for which no distinction was made between hyperactivity and convulsive disorders are excluded (n=9).

Table 3-7

Drugs Used for the Management of Hyperactivity in Children Receiving Drug Therapy for Convulsive Disorders[a]

(Children = 24)[b]

Generic Name	Trade Name	Frequency[c]	Percent
I. Stimulants		(14)	
Methylphenidate hydrochloride	Ritalin	11	45.8
Dextroamphetamine sulfate	Dexedrine	2	8.3
Magnesium pemoline	Cylert	1	4.2
II. Tranquilizers (Major & Minor)		(7)	
Thioridazine	Mellaril	4	16.7
Chlorpromazine	Thorazine	1	4.2
Trifluoperazine hydrochloride	Stelazine	1	4.2
Diazepam	Valium	1	4.2
III. Antidepressants		(3)	
Imipramine	Tofranil	3	12.5
IV. Other		(3)	
Phenobarbital		1	4.2
Diphenhydramine hydrochloride	Benadryl	2	8.3
Total[d]		27	112.5

---

[a] Tabulated from the reports of early childhood special education teachers.

[b] Excluded from this analysis are four children for whom data were not available as to which of the two disorders each drug was prescribed.

[c] Numbers in parentheses indicate values for drug categories.

[d] Totals are inflated because two children had received more than one drug for hyperactivity during the school year.

Teachers in Phase Two identified a greater number of HA-CD children as having a handicapping condition concomitant with HA, including mental retardation, than was the case for children with HA alone. Therefore, one possible explanation for this disparity in drug treatment is provided by Millichap (1969):

> In the hyperactive mentally retarded child drugs are used primarily to facilitate management. In the child of normal intelligence it is important that the drug should have no untoward effects on learning, and the control of motor hyperactivity should be accompanied by improvement in attention, memory, perception, and coordination. (p. 1241).

Because Mellaril may impair cognitive performance at therapeutic levels (Sprague, Barnes, & Werry, 1970; Werry, 1970), the possibility of further retarding an intellectually handicapped child with drug treatment raises some difficult therapeutic questions.

Drugs used for the management of CD in HA-CD children are presented in Table 3-8. The difference between CD and HA-CD children is the percentage that received phenobarbital: 54.3% for the former and 8.3% for the latter.

Multiple Drugs

Thirty percent of the children in Phase One whom teachers reported as receiving drug treatment received more than one drug during the course of the school year (see Figure 3-5). Over half of the children about whom data were collected in Phase Three reportedly received

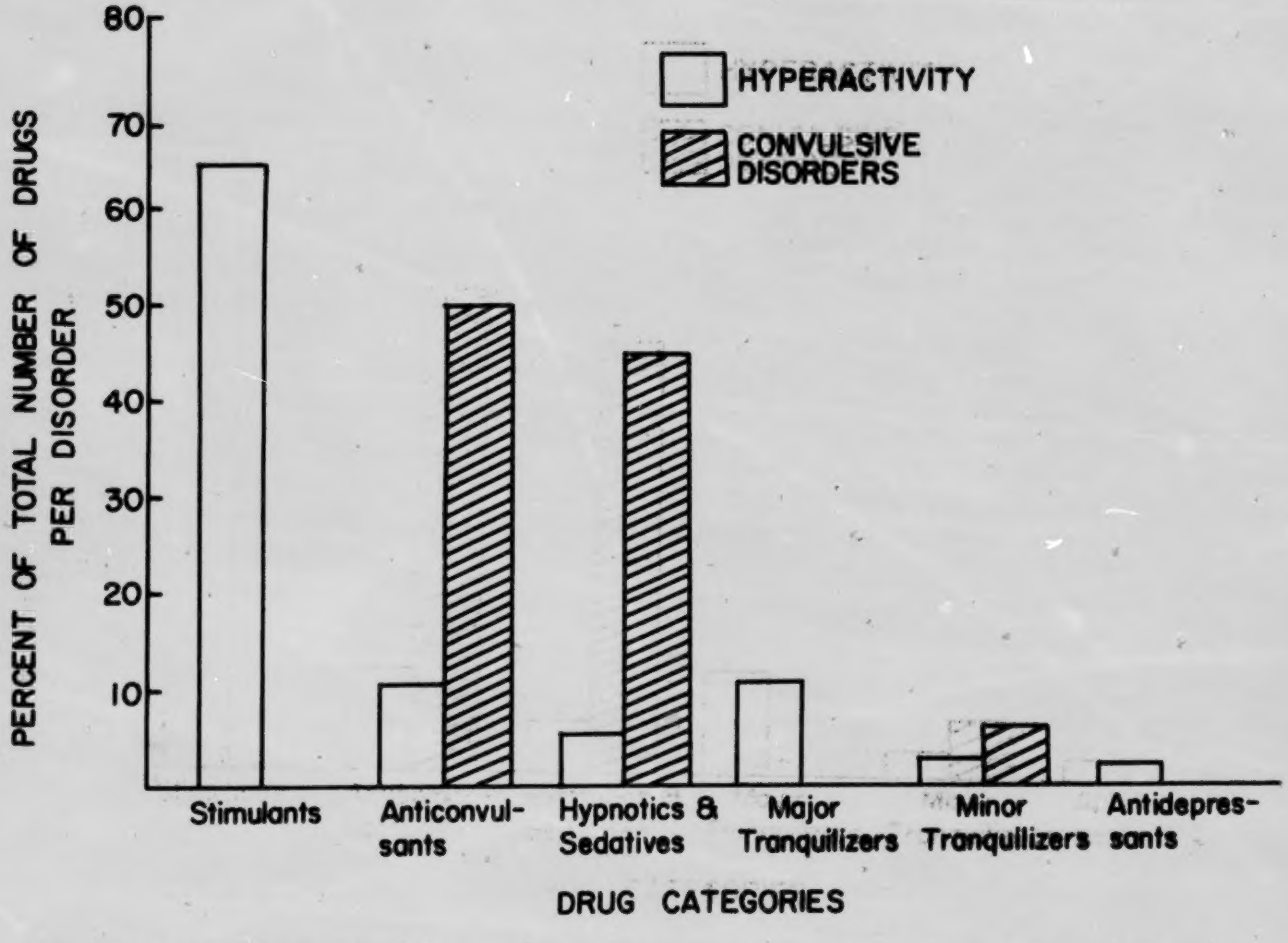

Fig. 3-4. Distribution of the drugs prescribed for hyperactivity and convulsive disorders.

more than one drug during the school year and 24% received three or more. Multiple drugs were reported for 61% of the CD children and 31% of the HA children. The differences between the Phase One and Phase Three data can be explained by the conservative nature of teacher reports, which is described in greater detail below.

Other Treatments for Hyperactivity

Over a third of the teachers reported the use of nonprescription drug therapies for the management of HA, including special diets, vitamins, operant conditioning techniques, and coffee (see Table 3-9). Although researchers have established the efficacy of operant conditioning techniques in the management of HA (Ayllon, Layman, & Kandel, 1975), few studies have compared the use of medication and behavior management techniques either separately or concomitantly (Christensen, 1975; Greenberg, Altman, & Cole, 1975). Several studies have investigated the use of coffee in the management of HA (Conners, 1975b; Garfinkle, 1975; Schnackenberg, 1973), however, the side effects of caffeine when compared to amphetamine are greater at equal levels of potency (Weiss & Laties, 1962). A number of other treatment modalities have been advocated, including special diet (Feingold, 1975) and vitamins (Cott, 1971). At this writing, neither has been established empirically through well-controlled studies. A host of sham remedies have received wide audiences through newspapers and popular magazines. This presents problems for the physician (Silver, 1975) as well as for the classroom teacher.

Accuracy of Teacher Reports

Teacher medication reports are clearly valid. The medication data reported by the 112 parents interviewed in Phase Three were compared case by case to the data reported by the child's teacher in Phase One. Only 2 (1%) of the 175 drugs reported by both the teachers and parents were identified incorrectly. In both cases Dexedrine was reported by the teacher, but the parents identified Ritalin as the drug being used. Possible errors of commission, i.e., drugs the teacher reported the child received during the school year which were not reported by the parent, accounted for 4% of the total teacher report. Six of the seven errors of commission were drugs that were listed on the child's medical records. These drugs were either errors of omission on the part of the parents, or instances in which the child received the drug prior to the school year. All seven had been terminated at the time of data collection. Errors of omission, i.e., drugs the parents said the child did receive during the school year but were not reported by the teacher, accounted for 21% of the total medication volume reported by parents. Of these drugs, 59% were either administered at bedtime, only for special circumstances, or for three weeks or less duration, and all but four had been terminated at the time of the survey. Teachers may not know offhand, or have easy access to, medication information about all the children they teach; however, when asked to acquire and report such information, it is quite accurate. Teachers were asked to indicate how certain they were whether or not their students had received medication during the school year and to judge the accuracy of the medication information they reported. Most teachers (93%) were either "very certain" or "certain" about their knowledge of medication usage. Eighty-three percent felt their information was "very accurate" or "accurate."

The errors of omission make teacher figures for total drug volume on the conservative side. It should be noted, however, that: (1) drug omissions from 6% of the children accounted for 59% of all errors of omission, and (2) that many of the omitted medications would be expected to have little impact upon the child's educational development because they were administered only at night or given intermittently. In the case of short duration medications—three weeks or less—total educational impact would also be expected to be minimal. The question of whether the total

Table 3-8

Drugs Used for the Management of Convulsive Disorders in Children Receiving Drug Therapy for Hyperactivity[a]

(Children = 24)[b]

Generic Name	Trade Name	Frequency[c]	Percent
I. Anticonvulsants		(26)	
Diphenylhydantoin sodium	Dilantin	19	79.2
Primidone	Mysoline	4	16.7
Methsuximide	Celontin	2	8.3
Ethosuximide	Zarontin	1	4.2
II. Hypnotics & Sedatives		(3)	
Phenobarbital		2	8.3
Mephobarbital	Mebaral	1	4.2
III. Tranquilizers (Major & Minor)		(3)	
Diazepam	Valium	2	8.3
Clorazepate dipotassium	Tranxene	1	4.2
Total[d]		32	133.5

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[a] Tabulated from the reports of early childhood special education teachers.

[b] Excluded from the analysis are four children for whom data were not availablecas to which of the two disorders each drug was prescribed.

[c] Numbers in parentheses indicate values for drug categories.

[d] Totals are inflated because seven of these children had received more than one drug for convulsive disorders during the school year.

Table 3-9

Nonprescription Drug Therapies for Hyperactivity

(Teachers=77)[a]

Item	Frequency	Percent
Nutrition (diet, special foods)	17	22.1
Vitamins	8	10.4
Operant conditioning techniques	56	72.7
Coffee	14	18.2
Other	1	1.3
Total[b]	96	

---

[a] Number of teachers who reported nonprescription drug therapies.

[b] Totals are inflated because teachers were permitted multiple responses.

number of children on medication is also conservative is very difficult to answer. Even if a sample of parents from the entire population were questioned about medication usage with their children, those who would withhold medication information from their teachers might respond in similar fashion to a direct survey. Teachers did feel quite certain that they knew whether or not the children they were teaching had received drug therapy for learning, behavior, or CD. The small student-teacher ratio and the involvement of parents in the educational process both give credibility to this certainty.

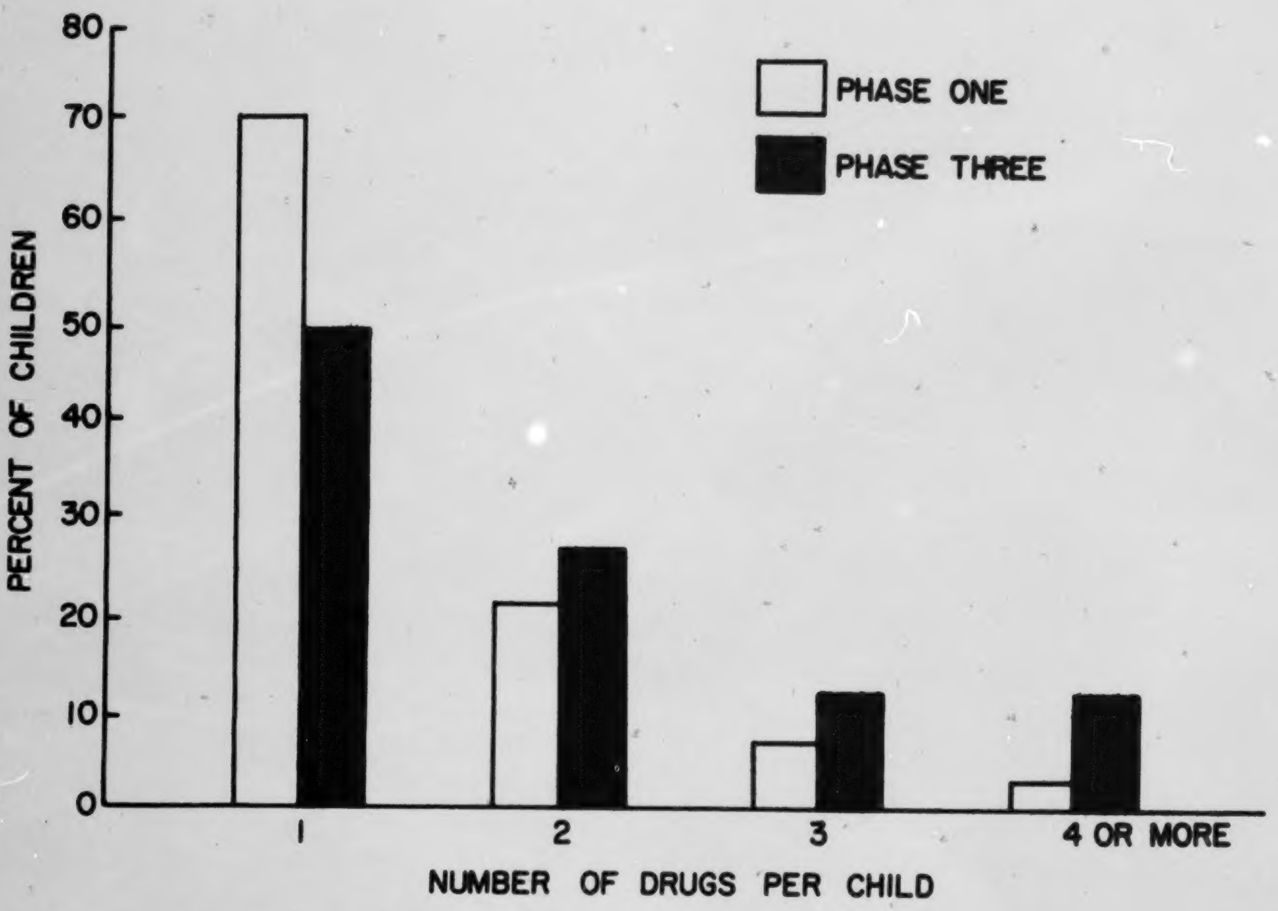

Fig.3-5. Number of different drugs prescribed for each child during the school year.

IV.

PARENT INTERVIEWS ABOUT DRUG TREATMENT

The sample of children about whom information was collected in Phase Three are quite similar to the Phase One children reported to have received drug therapy in terms of age, sex, race, and whether on or off medication near the close of the school year. Also, they are only slightly different in the relative frequency of hyperactivity and convulsive disorders, and drugs prescribed for each disorder. Therefore, this sample is quite representative of the total number of children reported as receiving drug treatment in terms of demographic characteristics, disorders treated, and type of drugs prescribed.

Although children were grouped as HA, CD, of hyperactive-convulsive disordered, no attempt was made to investigate the appropriateness of these diagnostic labels. All but four of the parents of children grouped as HA indicated that the drug therapy was for HA. Of those not on medication for HA, two were receiving medication for behavior problems (aggression, tantrums) and two for attentional deficits. The mothers of two behavior problem children said their children were not HA and both were receiving tranquilizers. Ten of the children receiving drug treatment for HA were also described as having other problems, e.g., short attention span, which are characteristic of the syndrome. Two mothers of children who received drugs for HA said their children were not really HA. One mother explained, "Child seemed HA, but I think it was emotional because I was pregnant and couldn't pick him up. He was the youngest child for four years." The mother of the other child explained that he was placed on Ritalin for HA because of his behavior in the physician's office while his older brother, being treated for HA, was receiving a check-up. The drug made the younger child "tired," "dopey," and fall asleep in class. Both the teacher and school nurse strongly opposed drug therapy, and the child was taken off medication after a month of treatment. The mother said she knew the child was not HA, having the older son as a comparison but yielded to the physician's advice. Children who received anticonvulsants for attentional deficits, minimal brain dysfunction (MBD), or abnormal electroencephalogram (EEG) were difficult to place. One child with attentional deficits was grouped with HA and another with an abnormal EEG was classified as CD.

Although mothers were asked what type of convulsive disorder their child had, many did not know. This, plus the considerable inconsistency across classification schemes (Gastaut, 1970) and the inaccessibility of physicians' records, made grouping by seizure type not only impossible, but beyond the scope of the study. Children grouped as CD either had had at least one overt seizure for which they were receiving continuous drug treatment or had subclinical seizures evidenced by EEG readings. Parents described the former as receiving medication for seizures, convulsions, or epilepsy. Grouping CD and HA-CD children, four were reported as being treated for subclinical seizures. It was not asked, however, exactly what behavioral dysfunction drug therapy was to improve, if any.

HYPERACTIVITY

Most parents of children receiving medication for HA felt the drug had a beneficial effect upon the child's behavior, particularly in changing motor activity, improving attending behavior, and making the child more manageable (see Table 4-1). These same behavioral domains are sampled in drug-sensitive rating scales (Conners, 1969, 1970). Of a child receiving Dexedrine, a parent said, "He's less impulsive, can sit still now, his attention span is increased. He's a happier child now, seems more at peace with himself." Comments about activity level were frequent, e.g., "never before [Tofranil] sat and watched T.V.," "still active but channels it better," and "slowed down enough to read to." Parents also reported children were more manageable saying, "It [Ritalin] calms him down

Table 4-1

Parent Perception of Therapeutic Benefits of Drug Treatment for Hyperactivity[a]

Response Category[b]	Hyperactive (Children=43)[c]		Hyperactive/Convulsive (Children=12)	
	F[d]	%	F	%
Hyperactivity	(39)	(37.9)	(6)	(27.3)
Less motor activity (restlessness)	9	20.9	2	16.7
Sit still longer	11	25.6	2	16.7
More calm	13	30.2	1	8.3
Slow down	6	14.0	1	8.3
Manageability	(12)	(11.6)	(5)	(22.7)
Easier to control	3	7.0	3	25.0
More reasonable[e]	6	14.0	1	8.3
Better self control	2	4.7	0	0.0
Less mischief	1	2.3	1	8.3
Attention	(9)	(8.7)	(5)	(22.7)
Attends for longer periods	5	11.6	3	25.0
Pays attention better	4	9.3	2	16.7
Temperment	(8)	(7.8)	(0)	(0.0)
Less emotional (crying, screaming, temper tantrums)	5	11.6	0	0.0
Less frustrated	2	4.7	0	0.0
Happier	1	2.3	0	0.0
Social	(6)	(5.8)	(0)	(0.0)
Less aggressive	3	7.0	0	0.0
Plays better	2	4.7	0	0.0
Improved peer relations	1	2.3	0	0.0
Sleep	(4)	(3.9)	(2)	(9.1)
More normal sleep cycle	2	4.7	1	8.3
Sleeps better	2	4.7	1	8.3
Miscellaneous	(25)	(24.3)	(4)	(18.2)
Better concentration	4	9.3	0	0.0
Improved school performance	3	7.0	0	0.0
Less destructive	3	7.0	0	0.0
More relaxed	2	4.7	0	0.0
Finishes tasks better	2	4.7	0	0.0
Less impulsive	1	2.3	0	0.0
Less distractable	1	2.3	0	0.0
Other	9	20.9	4	33.3
Total[f]	(103)	(100.0)	(22)	(100.0)

[a] Responses were prompted by asking the mother why she felt the medication had helped her child. Responses for only those parents who perceived the medication as having a beneficial effect are recorded.

[b] Percentages for each item are based on the total number of children.

[c] Response for one child was not recorded.

[d] Numbers in parentheses are the values for the response categories. Percentages are based on the total number of responses, 103 and 22 for hyperactive and hyperactive-convulsive children respectively.

[e] Characteristic response was, "I could get through to him/her."

[f] Parents were permitted multiple responses.

to where you can get through to him," or "can reason with him." Also reported were changes in aggressive behavior, "He was mean [before Ritalin treatment] but not I don't have to watch him because he doesn't hurt others," and improvement in sleep cycle, "Without it [Ritalin] he is up at 5:00 a.m. and goes to bed at midnight." One parent said Ritalin helped her child toilet train. Although the actual role of drug treatment is unclear, Schain (1975) reported a similar effect on enuresis. Most parents were commenting on therapeutic improvement with stimulants, but similar reports were made for the variety of other drugs prescribed for HA. When parents were asked to evaluate drug efficacy in terms of specific characteristics, over 90% of the parents of children actively receiving medication felt the drug reduced motor activity and improved attention, and three-fourths said medication helped the child to follow directions and complete tasks. Many (68%) also felt that drug treatment helped improve peer relations. There are moderate intercorrelations between HA and attention, attention and follows directions, and attention and task completion (see Table 4-2).

Drug Combinations

The number of different drugs per child used for the management of HA and CD is presented in Figure 4-1. Although drug regimens for HA typically involve only one drug at a time, children refractory to a single drug regimen may be benefited by combinations of drugs, e.g., Ritalin and Mellaril (Katz, et al., 1975). Only 10% of the HA children were reported as receiving more than one medication at a time, and for all but one the additional medication was administered in the evenings. This was usually a minor tranquilizer (Atarax, Vistaril, Valium). The one other reported drug combination was Dilantin and Milontin for a child with attentional deficits.

Dosage and Schedule

The median daily dosage of Ritalin, 15.0 mg, is quite similar to that of Dexedrine, 16.5 mg (see Table 4-3). Although it is common clinical lore that twice as much Ritalin as Dexedrine is needed for an equivalent therapeutic response (Safer & Allen, 1976), research on cognitive performance has not borne this out (Sprague & Sleator, 1976). Some parents said daily dosage varied depending upon the child's behavior. For one child, the dose of Ritalin could range from 35 mg to 65 mg per day. These dosage data are similar to those reported for 6–10 year olds from a survey of 700 Chicago physicians in 1971 (Sprague & Sleator, 1973, 1975). The average daily dose of Ritalin for children 0–5 was 11.5 mg and for children 6–10, 16.5 mg. For Dexedrine the figures were 6.5 mg/day for 0–5 year olds and 11.0 mg/day for 6–10 year olds.

Although data have been presented demonstrating the efficacy of a single morning dose of stimulant medication (Sleator & von Neumann, 1974; Safer & Allen, 1973b; Sprague, Christensen, & Werry, 1974), stimulants are typically administered two or three times per day, usually in the morning and at noon (see Figure 4-2). Because one of the most common side effects of stimulant drug treatment is insomnia (Conners, 1971b), which can be produced by a noon dose (Safer & Allen, 1976), it is interesting to note that 15% of the stimulant drug regimens involved a dose at supper and 28% included an evening dose. Kinsborne (1973) has argued that if stimulants are not given late enough in the day, the therapeutic effect will not overlap the hour of sleep, and, combined with a rebound effect, the child may have difficulty sleeping. The time of day HA and CD children receive medication is presented in Figure 4-3. The data represent the schedule for the most recent drug regimen, and schedules for drug regimens that involved more than one drug were combined into one. All of the HA children received medication in the morning, 65% at noon, 23% in the afternoon, 15% at supper, and 42% in the evening. In the evening, stimulants were given to 19%, minor tranquilizers (Atarax, Vistaril, and Valium) to 14%, and other drugs with hypnotic properties to 10%. It is not known whether some of the preschool children receiving minor

Table 4-2

Intercorrelations Among the Five Indices of
Therapeutic Improvement

(Children=52)

Variables	1	2	3	4	5
1. Hyperactivity[a]	--	.68	.45	.36	.38
2. Attention Span		--	.61	.47	.63
3. Follow Directions			--	.37	.61
4. Peer Relations				--	.50
5. Task Completion					--

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[a] Tabulated for those children indicated by their parents as hyperactive, n=47.

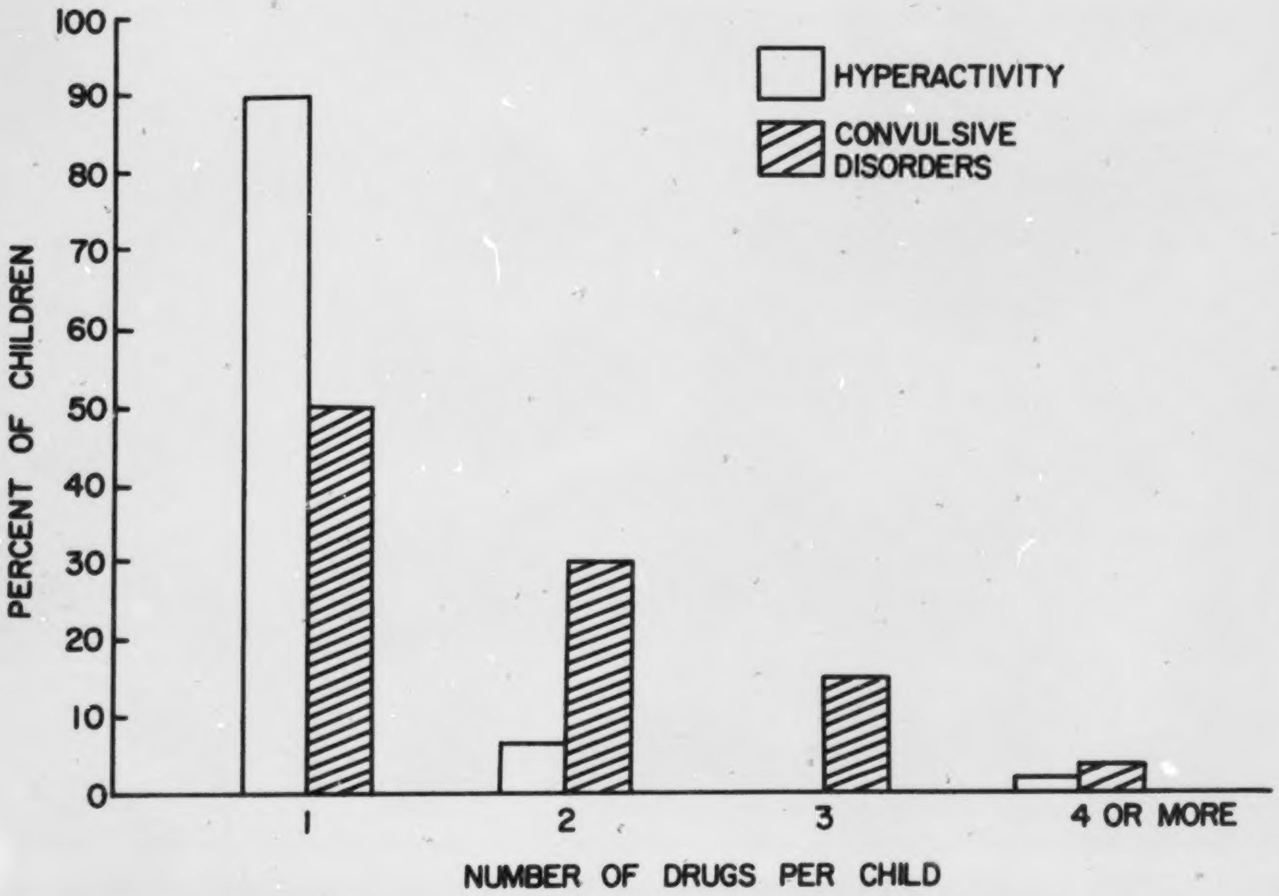

Fig.4-1. Number of different drugs prescribed per child per day.

tranquilizers and hypnotics at bedtime were doing so to counteract insomnia produced by the stimulants (Arnold, 1973).

The frequency of divided daily dosages of medication implies that many children must receive medication at school, especially if they attend a full day of classes and do not return home for lunch. Krager & Safer (1974) report that 61% (1.05% of the total school population) of the HA elementary school children in Baltimore County, Maryland receive medication at school. Although 65% of the early childhood special education (ECSE) children in the present study received a noon administration of medication, only 21% of the children reported in Phase Two received medication at school. Because preschool classes are typically for a half day, most children can receive medication at home. School nurses administered the medication to the elementary school children in the Krager and Safer study, but teachers administered medication in the present survey. Johnson and Kenney (Note 3) report that in 1974-75, .65% of the elementary school children in the Minneapolis public schools received medication at school for HA. This figure had dropped to .42% in 1975-76 (Kenney, Note 4).

It was estimated for children actively receiving medication at interview that the median age at onset of drug therapy for HA was 4.5 years (median age at interview was 5.5 years) and median duration of treatment was 12 months (4.5 months for children off medication at time of interview). These must be interpreted as conservative estimates because children may have received medication prior to the drugs received during the school year or, as several parents indicated, received treatment at an earlier age and stopped for a period before resuming drug therapy. Considering the age of these children, drug treatment may be a lengthy procedure. For example, Solomons (1973) conducted a follow-up study of 97 HA children referred to a university diagnostic center and subsequently treated with stimulant drugs for HA. When surveyed, the average duration of treatment was 39 months for children still on medication and 27 months for children off medication. The earliest reported ages at onset of drug treatment for HA children in the ECSE study were 12, 21, and 23 months old. The child who was started on medication at age 12 months was 6½ years old at interview, and, with the exception of a three-month vacation on his aunt's farm, had been on Ritalin for 5½ years. Although there is suggestion in the literature for drug treatment with infants, toddlers, and preschoolers (Nichamin, 1972; Renshaw, 1974), as stated previously, few well controlled studies have been published.

A series of studies conducted at the Institute for Child Behavior and Development at the University of Illinois over the last eight years with HA children and stimulant drugs have repeatedly demonstrated the importance of investigating standardized dosage in relation to different response criteria (Sprague & Sleator, 1973, 1975, 1976). Statistical analyses of different groups of children have repeatedly shown maximum improvement on cognitive tasks with dosage ranging from .3 mg/kg to .5 mg/kg. However, when classroom behavior problems as measured by the Conners' Abbreviated Teacher Rating scale are the criteria, improvement in behavior continues to increase through 1.0 mg/kg, the highest dosage evaluated.* The importance of this relationship is that there is a significant increase in blood pressure and heart rate in some children at the higher dosage (Ballard, Boileau, Sleator, Massey, & Sprague, 1976), as well as decrements in cognitive performance (Sprague & Sleator, 1976). In order to estimate dosage in mg/kg, each child was assigned the median weight in kilograms for his age (in months) from tables developed by Lowrey (1973) which present weight data for six-month intervals by sex. However, such calculations are estimates. For example, the difference between the 10th and 90th percentile for the median age HA male is 6.5

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*The term mg/kg refers to medication in milligrams (1/28,000 of an ounce) per weight of the child in kilograms (2.2 lb.).

Table 4-3

Daily Dosage of the Drugs Most Frequently Prescribed for Hyperactivity[a]

Drug	Children	Median (mg/day)	Range (mg/day)
Ritalin	33	15.0	5-45
Dexedrine	8	16.5	5-35
Mellaril	6	20.0	20-50

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[a] Tabulated from parent interviews.

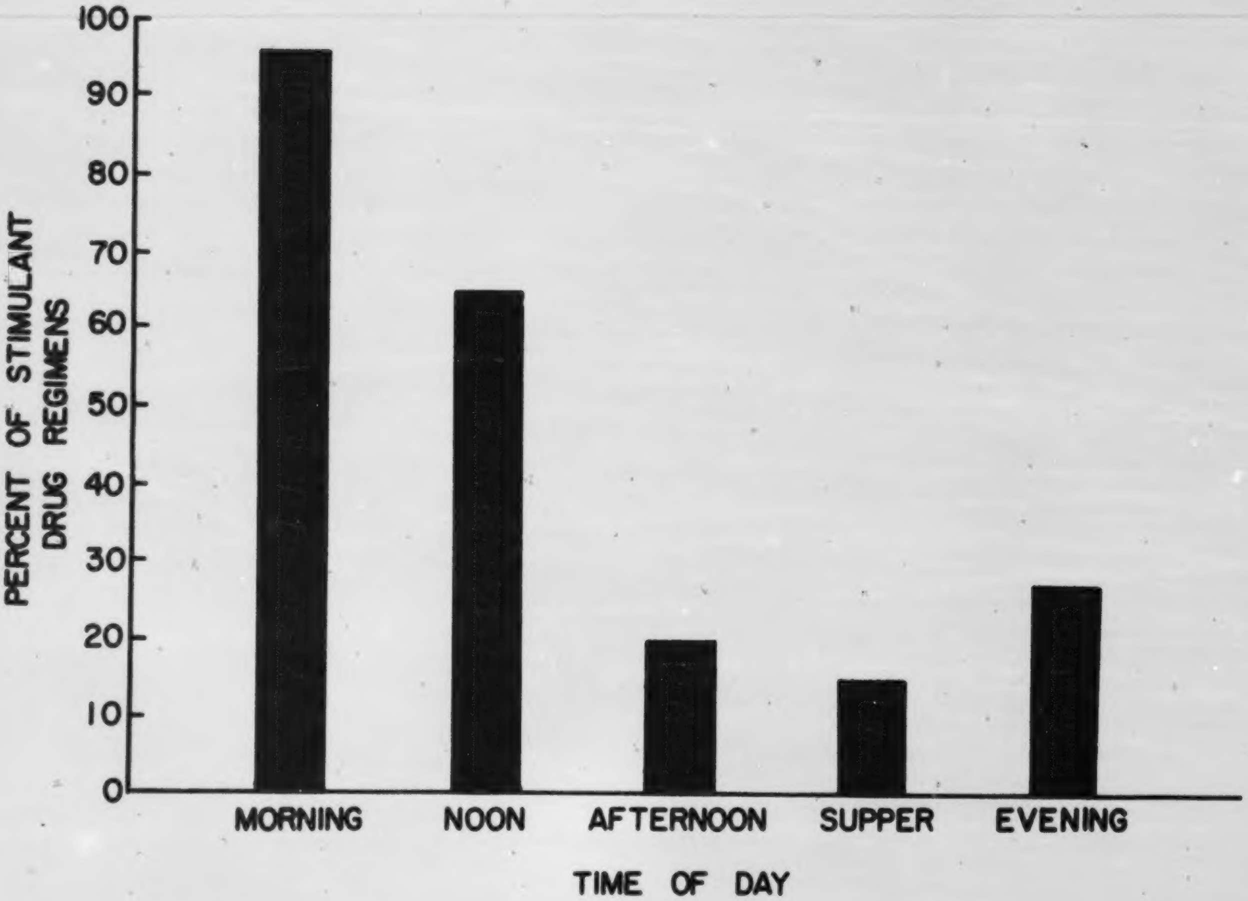

Fig.4-2. Time of day stimulant drugs administered to children treated for hyperactivity.

kilograms. Therefore, the mg/kg dosage for a 5.5 year old male receiving 20 mg of Ritalin would be 1.14 mg/kg for the 10th percentile and .83 mg/kg for the 90th percentile, a difference of .31 mg/kg for this particular dose. The estimated median morning dosage is .30 mg/kg for Ritalin and .27 mg/kg for Dexedrine (see Table 4-4). It is evident from these figures that morning dosages are well within the range of maximum effectiveness for cognitive performance (only 18% were above .5 mg/kg). The total daily dosage is .70 mg/kg for Ritalin and .72 mg/kg for Dexedrine. Because only small amounts of Ritalin appear in the blood at therapeutic levels, little is known about the pharmacokinetics (absorption, distribution, and excretion) of Ritalin in humans (Milberg, Rinehart, Sprague, & Sleator, 1975). At this point it is unclear what the relationship is between divided daily dosages in mg/kg and side effects, therapeutic response, and serum level. It should be pointed out that the doses of Ritalin prescribed are below what many experts suggest (Sprague & Sleator, 1975). It would appear therefore, that with ECSE children as well as other school children (Sprague & Sleator, 1975), physician prescribing practices are conservative.

The estimated median morning dose of Mellaril is .56 mg/kg and median daily dosage is 1.12 mg/kg. A single daily dose of 1.0 mg/kg of Mellaril has been shown to retard cognitive performance in HA emotionally disturbed children (Sprague, Barnes, & Werry, 1970). Although the morning dose was small for four of the six HA preschool children on Mellaril, one child was receiving 2.42 mg/kg. The dosages of Mellaril for the six HA-CD children are somewhat larger, median morning dose .81 mg/kg (range: .45-2.03 mg/kg) and 1.71 mg/kg (range: 1.34-4.50 mg/kg) for total-daily dosage. Half of the morning doses exceeded 1.0 mg/kg.

Side Effects

Side effects were reported for 59% of the children receiving Ritalin and for 63% receiving Dexedrine. Two common side effects of these drugs are appetite suppression and insomnia (Conners, 1971b). Suppressed appetite and/or weight loss was reported for 30-40% of the children who received these drugs. The mother of one six-year-old boy with severe HA said her son lost 17-18 pounds after five months of Ritalin treatment (dosage ranged from 35-55 mg/day). Safer and Allen (1973a) reported growth suppression with stimulant drug treatment but also observed a growth rebound after drug treatment had been terminated (Safer & Allen, 1975). After reviewing several growth studies, Ross and Ross (1976) conclude that the data, "...support a *delay* rather than a suppression of it [growth]" (p. 112). Long term follow-up studies on HA children who received low and moderate doses of stimulants combined with drug-free periods have failed to show any suppression of growth when compared to normal children (McNutt, Boileau, Cohen, Sprague, and von Neumann, Note 5). Insomnia was reported by 16% of the children who received Ritalin and 40% for Dexedrine.

Two of the more alarming side effects for teachers and parents are changes in mood and what Schain (1975) refers to as "personality disturbance" and Schleifer et al., (1975) call changes in "peer relations." A fourth of the parents reported such changes for Ritalin and 40% for Dexedrine. Parents describe their children as "overly quiet," "more quiet than she should have been," "sat in a corner, sucked her thumb, and wouldn't speak at all," "stared in space," and "has a stillness about him that I don't like." Schleifer et al., (1975) report similar side effects for preschool children which resulted in drug discontinuation for all but three of the 28 children in the study. Side effects were described as "less social behavior and interaction" plus "sadness, irritability, excessive hugging and clinging, and increased solitary play." Schain (1975) reported a similar reaction in 6.4% of the 6-12 year old children, which he called a personality disturbance. The changes were described as withdrawn, lethargic, and apathetic behavior and other characteristics of depression. From a survey of teachers about

Table 4-4

Estimated Standardized Dosage of the Drugs Most Frequently Prescribed for Hyperactivity

Drug	Children	Median (mg/kg)	Range (mg/kg)
	Morning Dosage		
Ritalin	32	.30	.22- .82
Dexedrine	7	.27	.23- .48
Mellaril	6	.56	.48-2.42
	Total Daily Dosages		
Ritalin	32	.70	.27-2.05
Dexedrine	7	.72	.27-1.69
Mellaril	6	1.12	.97-2.73

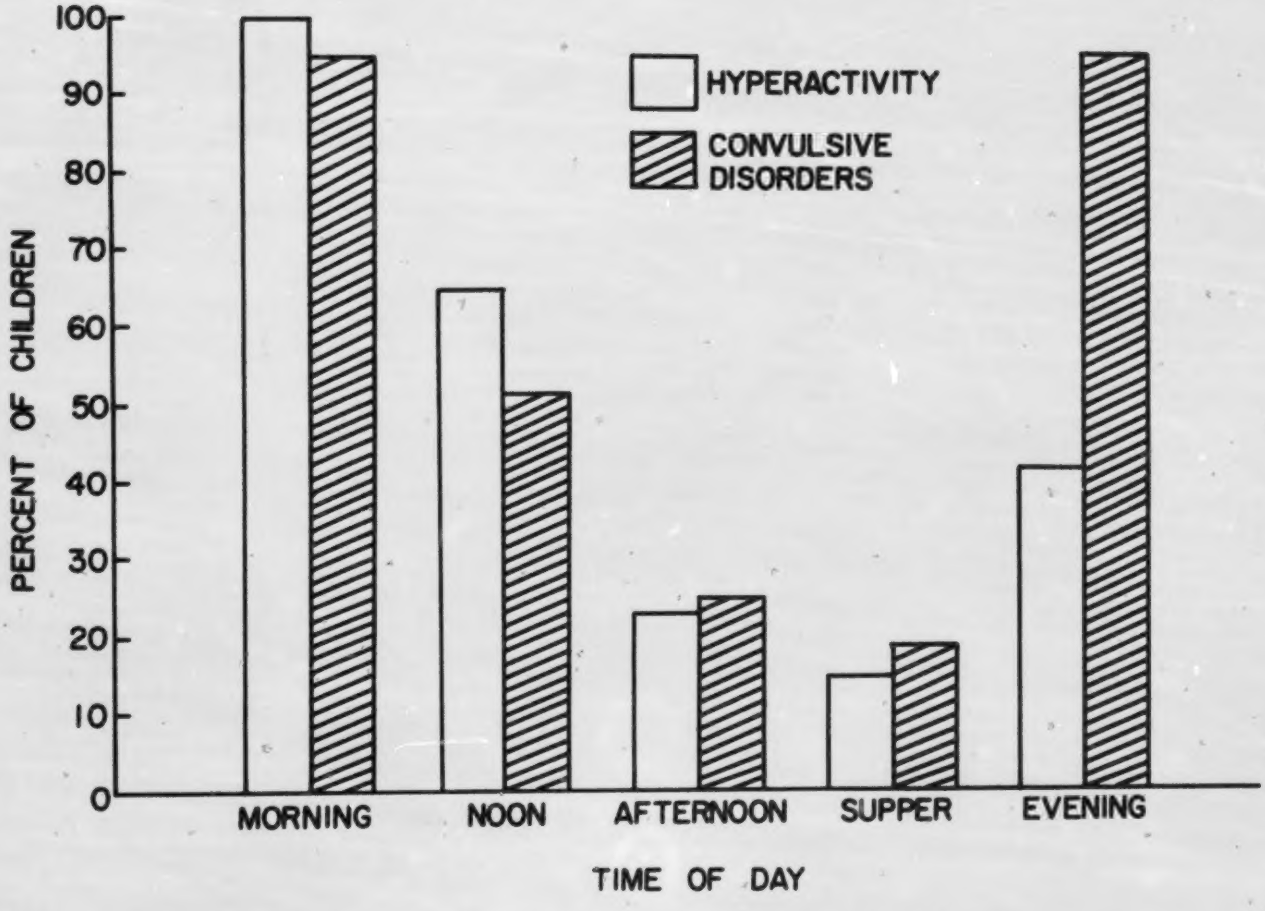

Fig.4-3. Time of day drugs administered to children treated for hyperactivity and convulsive disorders.

teacher-physician contact and children receiving medication for HA, Weithorn and Ross (1975) reported that 17% of the children were described as lethargic. These reactions may appear concomitantly with an "'amphetamine look',...sunken-cheeked, sallow, dark shadows under the eyes," described in Ross and Ross (1976, p. 110). A parent described her child as having, "...a spacy look about his eyes, has a stillness about him that I don't like." Such an appearance may explain the "zombie" characterizations given to these preschool children by their teachers (Sprague & Gadow, 1976).

Safer and Allen (1976) are emphatic about the fact that stimulants "...do not sedate the child or leave him 'spaced out'" (p.56). Such assurance may be premature. One parent said that after four months of treatment the child developed a tolerance to the therapeutic response, and, "It [Ritalin] made him very drowsy, he would just sit in the corner and yawn. When it wore off he was worse than ever, ten times more active than before. But at first it worked." Another mother said the school had called and told her the Ritalin was, "making him dopey in class and sometimes he'd fall asleep." Two other parents reported drowsiness. Drowsiness has been reported in stimulant drug studies with children (Montagu & Swarbrick, 1975), and a study of the effects of an acute dose of 10 mg of dextroamphetamine (Dexedrine) produced drowsiness in 13 of the 20 adult subjects within an hour after administration orally (Tecce & Cole, 1974). The drowsiness was followed by a period of heightened alterness two or three hours after ingestion.

As to whether stimulant drugs can "space out" a child, studies at the University of Illinois with stimulants and HA children show that higher doses (1.0 mg/kg) of Ritalin can actually produce decrements on cognitive tasks. For some children performance is well below placebo and no-drug conditions. This investigator has personally observed children on laboratory equipment after receiving higher doses of stimulants who were confused enough to warrant the label "spaced out." This dose relationship was reported by a parent in the ECSE survey who said of the high dosage (65 mg of Ritalin per day): "It seemed to sedate him a bit. He has a language problem and talks on a three-year-old level. So we are changing the dosage....and with less Ritalin he's a little more HA but talks much better. It's a matter of getting a happy medium." Due to the short duration of therapeutic response—4-6 hours—some dose-response relationships as a function of time after ingestion may have been overlooked. As already discussed, studies of serum level and response relationships are nonexistent.

The seriousness of these "depressive" reactions seems to vary with the researcher. Both Schain (1975) and Schleifer, et al. (1975) see this as an indication to stop treatment, while others feel it is simply a matter of decreasing dosage for a few days until a tolerance to this side effect develops (Safer & Allen, 1976). Dr. Esther Sleator, research pediatrician at the Institute for Child Behavior and Development, states that she has observed these reactions only on the higher (1.0 mg/kg) dose of Ritalin and reducing the dosage not only eliminates these side effects but produces a more desirable therapeutic response from the standpoint of cognitive performance (Sleator, Note 6).

Two other side effects which are considered rare were reported. One child possibly had a dyskinetic episode (Mattson & Calverley, 1968) from Ritalin which "calmed her down but made her nervous in other ways—bit her nails and moving tongue around." Another parent reported an exacerbation of stereotyped behavior; the child "rocks much more with the medicine [Ritalin] than without it."

Referral

Although considerable attention has been focused on whether or not schools refer too many children suspected as being HA or coerce parents into obtaining medication for their children through their family physicians (Grinspoon & Singer, 1973; Ladd, 1970; Safer & Allen, 1976;

Schrag & Divoky, 1975), very little data has been gathered on the actual referral procedures, if any. In the present study half of the 52 parents of HA children said someone had suggested they see a doctor about their child's behavior or were informed about the advisability of medication. A variety of different people were mentioned as referral sources. Eleven (21%) of the parents said school personnel were the referral source, of which only three (6%) were public school teachers. However, a third of the children placed on medication during the school year were referred by school personnel. Due to the age of the children and the fact that ECSE was their first public school placement, the role of the school in the referral process may be quite different for older children. Some parents (17%) said the physician was the referral source, but, due to the structure of the interview questionnaire, data were not collected on the specialists involved, e.g., referral by a pediatrician to a neurologist.

Change in Medication

Four (22%) of the children off medication at the time of the interview and eight (24%) of the children on medication had changes in the type of medication they received during the school year. Terminated drugs were not different in relative frequency from medication in the total drug volume, e.g., stimulants accounted for 64% of all terminated drugs. For four of the 12 children, changes in medication involved more than one drug. A number of reasons were given for changing medication. The most frequent were side effects, including rebound effects, failure to produce therapeutic response, and physician preference for another agent. For an example of the latter, a mother said the pediatrician put her child on Ritalin, but the child's neurologist switched to Mellaril, explaining to the parent that Ritalin stunted growth. Although data were not collected on dosage changes during the school year, a third of the parents of children actively receiving medication were unsatisfied with the present dosage, either wanting the amount increased to enhance therapeutic response or lowered to reduce side effects.

Follow-up of Drug Treatment

Solomons (1973) suggested a minimal criterion for adequate follow-up of drug treatment *after* dosage had been adjusted, as two physician contacts (office visit, telephone, letter, etc.) within the last six months or three contacts per year. Using this criteria, 55% of the children in his follow-up study were considered to be adequately monitored. This is certainly a conservative criterion if one considers that the physician could be involved in parent counseling (Schaefer Palkes, & Stewart, 1974), training parents in behavior management skills (Drabman & Jarvie, 1977), monitoring side effects, compliance, and tolerance to therapeutic response, directing drug-free periods, and assessing therapeutic progress. Arnold (1973) states that if the drug regimen is stable and treatment is satisfactory then two or three office visits per year is a good guideline for follow-up. Of the 52 parents of HA children in ECSE programs who were interviewed, 52% said their child had had an office visit within the last three months, 87% within the last six months. Of those parents who stated a specific frequency, 58% said three or more office visits per year, and most reported telephone contacts as well. Although physician contacts are a prerequisite for adequate monitoring, they only present an opportunity for inquiry. An analysis of the content of follow-up contacts for HA children treated at a university psychiatric clinic conducted by Loney and Ordona (1975) revealed, among other things, that: (1) target symptoms were neither identified nor evaluated in terms of improvement; (2) teacher and parent rating scales used extensively in diagnosis were seldom a part of follow-up; (3) teachers were rarely contacted directly; and (4) monitoring was achieved by simply asking the parent how the child was doing and attributing any behavioral change to the medication. The lack of direct contact between teacher and physician is corroborated by reports from ECSE teachers in Phase One and Phase Two. Only seven (14%) of the parents said the physician did not ask them how their child was doing in school. Four of the children were receiving tranquilizers, and, for two others, the physician refused to interact with the school about the child's response to treatment, according to the mother. The parent of the other child said the teacher had suggested a drug-free period. Of those who did report physician inquiries about school performance, four commented that the child's teacher sent periodic reports to the physician.

Although periodic breaks in medication, or drug-free periods, are considered an essential component of adequate follow-up procedures (Arnold, 1973; Katz et al., 1975; Sleator & von Neumann, 1974) only 58% of the parents reported opportunities to reevaluate efficacy and necessity of drug treatment. (The median duration of treatment for those children who received a drug-free period was 12 months, while for those who did not it was nine months.) For children already receiving medication at enrollment, such breaks in drug treatment provide the teacher with an opportunity to assess the child's educational needs and set treatment objectives (Sprague & Gadow, 1976). Of the children receiving a break in medication, 70% had received it within the last six months. Comparing teacher data on how long the child was in school and the date school closed for the summer to parent reports of how long ago the drug-free period was initiated, it was estimated that 19 (37%) of the HA children received a break in medication during the school year. This is higher than teacher reports of drug-free periods (30%), but several of the HA children received breaks in medication after the medication questionnaires in Phase Two were completed. It is interesting to note that the primary initiator of such breaks in medication is the parent (50%), with physicians' suggestions accounting for little over a third (38%), teachers 7%, and others 7%. Weekends, holidays, and summer vacations may also serve as drug-free periods (Arnold, 1973; Safer & Allen, 1976; Sleator and von Neumann, 1974). Breaks over the summer minimize the possibility of growth suppression, and starting the child off medication at the beginning of the school year creates an opportunity for reassessing the need for treatment. For severe cases, the dosage may be reduced instead of terminating treatment altogether (Safer & Allen, 1976). Katz et al. (1975) have cautioned that such breaks in the regimen may be a great disservice for some children by denying necessary treatment, e.g., while at summer camp. Only three of the HA children in the ECSE programs did not receive medication every day on a year-round basis. Two children were off for the summer, and the other during weekends and holidays. Another child received a reduced dose during the summer.

As might be expected the child's response to a drug-free period was strikingly different for children actively receiving medication compared to children taken off drug treatment. All but one of the children on medication responded with a return of the disorder. Their behavior during the break in medication was characterized as "uncontrollable," "wild," "destructive," and "wore out family." The recurrence of the disorder may be traumatizing for the family of a severely HA child. One mother said that although her physician recommended a break in medication, she refused. Another said, "It was like letting a lion out of a cage.... He was very destructive, tore thing up, ran absolutely wild many hours a day." The break in medication was scheduled during her husband's vacation because, "I needed him around; I could never have managed him [her son] by myself." Such breaks also provide an opportunity to assess untoward reactions. For example, the mother of a child receiving 50 mg of Mellaril in the morning said, "He was more alert (off medication) but talked constantly and rapidly, couldn't be still." Another mother who was disquieted about changes in her child's personality commented, "It [the break in medication] increased his HA, but we liked him better when he was off it [Ritalin]. He was 'with us' and seemed to be more himself." The weighing of side effects and therapeutic benefits poses problems for parents, teachers, and physicians, resulting in difficult decisions and possible conflict about treatment objectives. Five of the nine children for whom drug therapy had been terminated at interview and who had received a drug-free period were characterized by their mothers as unchanged when off medication. The rest were described as less HA than before treatment.

Compliance and Dosage Manipulations

Data about physician monitoring, dosage adjustment, and compliance to physician instructions is presented in Table 4-5. Presented are the number of parents who responded "yes" to each item. Noncompliance with physician instructions, including altering dosage or frequency of medication and forgetting to give medication, is a problem in effective medical management (Blackwell, 1973; Mattar, Markello, & Yaffe, 1975). Erratic administration can also be a problem for the teacher (Sprague & Gadow, 1976). Over half of the parents of HA children report forgetting to give medication, with 15% omitting four or more dosages per month. Because parents may not wish to acknowledge forgetting medication (Gordis, Markowitz, & Lilienfeld, 1969), these figures should be considered conservative estimates. ECSE teachers in Phase Two felt 12% of the HA children did not receive medication regularly. For the HA child receiving stimulant medication, a forgotten dosage could mean the reappearance of the characteristics of the disorder within several hours after the last administration. Ironically, for some parents a forgotten dose served as an unscheduled drug-free period, confirming the necessity for continuous treatment. Or, as one mother commented when asked how often she forgot, "...once a month. That's how we discovered we could do without it (Mellaril)."

Over a third (37%) of the parents of HA children reported that their physicians permitted them to alter the dosage if they thought it was necessary, and 26.9% reported giving extra medication at special times. Some special situations stated were "when there's going to be lots of people," "at night...if he's extra active," "if we go somewhere in the evening," and "if there's going to be some excitement or if he's really wound up." Similarly, Solomons (1973) reported that 28.9% of the parents in his follow-up study reported being permitted to alter dosage or frequency of medication. Although this may be efficacious in some circumstances (Katz et al., 1975; Safer & Allen, 1976), it also characterizes some children who are poorly monitored (Solomons, 1973).

Termination of Drug Treatment

By the close of the school year, 14 (27%) of the HA children were no longer receiving medication and four (8%) were on drug-free periods. To date, very little data have been collected about the termination of drug treatment (Sprague & Gadow, 1976). The reasons given by the mothers for stopping medication are as follows: side effects (6), therapeutic improvement (4), developed tolerance to therapeutic benefit (4) and two children were misdiagnosed, i.e., were not really HA. Interestingly, for less than a third was the reason therapeutic improvement, and of these, two still had problems but the mother felt she could cope better. Although the data do not permit a thorough analysis of the interactions between teachers, parents, and physicians, in two cases the parents clearly terminated treatment on their own. From both parent and teacher reports, the teacher was instrumental in initiating the termination of medication for at least three children. Most (71%) of the children were receiving stimulants when drug therapy was terminated. At least a fourth had tried other drugs but this figure could be much higher if complete medical histories had been obtained. All but three children clearly received an adequate trial of at least one drug. The reasons for termination of the briefer trials (three weeks or less) were side effects and school opposition to medication.

Problems and Unanswered Questions

The numbers of parents who responded "yes" when asked if they had problems with the doctor, school, or unanswered questions about medication are presented in Table 4-6. A third of the parents reported things they wished their physicians would do differently; the most frequent

Table 4-5

Monitoring and Compliance[a]

Item	Hyperactivity (Parents=52)		Convulsive Disorders (Parents=44)	
	F	%	F	%
Adjusts dosage	19	36.5	12	27.3
Gives extra medication at special times	14	26.9	10	27.7
Desires dosage change[b]	13	34.2	8	19.0
Forgets medication 3-4 times per month	8	15.4	7	15.9
Office Visits[c]	(children=43)		(children=37)	
Two or more per year	35	81.4	34	91.9
Three or more per year	25	58.1	14	37.8

[a] Tabulated from parent interviews.

[b] Calculated for children receiving medication at interview (hyperactivity=38; convulsive disorders=42).

[c] Calculated for parents who stated a specific frequency.

Table 4-6

Problems and Unanswered Questions[a]

Item	Hyperactivity (Parents=52)		Convulsive Disorder (Parents=44)	
	F	%	F	%
Problems with doctor				
Yes	16	30.8	10	22.7
No	36	69.2	34	77.3
Problems with school				
Yes	6	11.5	4	9.1
No	46	88.5	40	90.9
Unanswered questions about medication				
Yes	25	48.1	14	31.8
No	27	51.9	30	68.2

[a] Tabulated from parent interviews.

desires being that the physician provide more information about medication and their child's disorder, improve medical treatment, and develop better rapport. Interpretation of these data is limited without an actual analysis of parent-physician interaction. For example, parents may be poorly informed from the standpoint of questions that concern them (Raimbault, Cachin, Limal, Eliacheff, & Rappaport, 1975), or the physician may have informed the parent adequately, at least within the limits of existing scientific data, but the mother forgot, was inattentive because she was under considerable stress, or was preoccupied with the child's disorder (Baird, 1972). Regardless, rapport and the degree to which parents are informed has direct bearing on compliance to physician instructions (Blackwell, 1973; Elling, Wittemore, & Green, 1960; Haggerty & Roghmann, 1972; Korsch, Gozzi, & Francis, 1968). Almost half of the parents had questions about their child's medication, the most frequent being what the therapeutic response was supposed to be, long term effects, side effects, and how the drug works. Due to questionnaire design, parents were not asked if they had in fact sought answers to these questions from their child's doctor.

Only a few of the mothers reported problems with the school, primarily about the quality of services and conflicts about what the treatment modality should be. The parent of one child no longer on medication said the school "pushed for medication," and that the teacher had tried behavior modification but did not try hard enough. Both parent and teacher reported therapeutic improvement with Ritalin, but the parent was alarmed by the child's "spacing out" in the morning and rebound in the afternoon. (The parent said the child had been on Ritalin two years previous.) The teacher felt the dosage was frequently manipulated by the parent, making therapeutic assessment difficult. She also stated that she was involved in the referral of the child to the physician but did not have direct contact with the physician about diagnosis, dosage adjustment, or termination of treatment. Conversely, another parent said, "I wish the school nurse hadn't been so negative about Ritalin. She [the nurse] would have saved my child a lot of wasted time in school. She [the child] wasn't learning anything while not on it [Ritalin]." The child's teacher reported that she suggested to the parent that the child be examined by a physician. Although interviewers encouraged parents to report conflicts and problems with the school, few did. Interviewers described parents as open and cooperative and only three parents mentioned problems with the school about medication. These data, combined with the fact that teachers were instrumental in terminating drug treatment and initiating drug-free periods, do not support the lurid exposes of school systems said to be drugging children or pushing medication.

It is quite difficult to generate reliable information about the role of the school in the referral process and about possible pressuring of parents into seeking drug treatment. Although there is not shortage of anecdotes about inappropriate school referral procedures (Bruck, 1976), the degree to which this happens is relatively unknown. There may have been parents of ECSE children who were pressed by the school to inquire about the advisability of medical intervention but refused and therefore would not have received a permission letter. Also, one may wonder if some parents did not respond because such a conflict did take place. In order to investigate the possibility that some parents resisted school coercion, all parents from a sample of programs would have to be questioned. Due to procedures protecting the confidentiality of school records, schools would have to mail permission letters, and there would still be the problem of nonresponders. Also, parents may not wish to acknowledge that they defied school recommendations. After possible cases of school coercion were identified, the problem of actually analyzing what the school-parent interaction really was would still remain. Random sampling of households is another approach that could be used, but, considering the small percentage of children receiving services in ECSE programs, this would be impractical.

At one time or another during the interview, a number of the parents expressed guilt about giving drugs to their children. Some typical comments were, "I don't want him on medication, but right now it means my sanity or his," or "The doctor says I can increase the dose to 40 mg a day but I don't want to hurt him." The mother of one child receiving a large dose of Ritalin said, "Every time I give him one [pill], I think about it [the long-term effects]. It's sort of like taking a butterfly that's wild and free and caging it. If we could live on a farm where he could run wild it would be different, but I guess in our society he has to learn to conform and accept learning that kind of thing."

The drug regimen provides a number of reasons and situations for interaction among parents, teachers, and physicians (see Table 4-7). For example, it was estimated that 29% of the HA children were placed on medication during the school year, 27% were taken off drug treatment, 23% had a change in the type of medication, and an estimated 27% were placed on drug-free periods. Considering side effects, forgotten medication, noncompliance with physician directions, different opinions about therapeutic needs, desire for more information, and attitudes about dosage changes, there are ample opportunities for conflict as well.

CONVULSIVE DISORDERS

Almost all parents felt medication helped their children by reducing the frequency or severity of seizures. Exceptions included one parent who said her child had outgrown the problem and four others who were uncertain because of early onset, dosage adjustment, seizures only during fever, and a diabetic child whose convulsion may have been the result of hypoglycemia. Only two of the 44 parents of CD children said their children had never had an overt seizure. Both mothers said medication was prescribed for subclinical seizures evidenced by an abnormal EEG reading. Seizure data about the other 42 CD children is presented in Table 4-8. Seizure control was not complete, and many parents (38%) said their children still had seizures, most on a daily, weekly, or monthly basis, depending in part upon seizure type. Over half (57%) of the 42 CD children had had a seizure within the last six months, and only seven (17%) of the children had been seizure-free for two or more years. Teachers in Phase Two said 27% of the CD children had had at least one seizure at school during the school year.

Drug Combinations

Half of the CD children received two or more drugs in combination, and two children received as many as four and five (see Figure 4-1). Polypharmacy may be necessary for several reasons (Livingston, 1972). First, an initial drug may be helpful in reducing the frequency and severity of fits but not completely adequate. Another agent may be added to see if therapeutic response can be improved, and two or three drugs may be necessary if the seizures are particularly frequent or severe. The control of petit mal seizures usually involves a petit mal drug as well as a grand mal agent. The latter is prescribed as a prophylactic measure against the development of grand mal seizures, which usually appear between 10 and 13 years of age in these children. Because many epileptics may have more than one kind of seizure (Gibbs & Gibbs, 1952; Lennox, 1960), it may be necessary to use different agents to control the different types of seizures. Although more than one drug may be necessary to achieve adequate control of seizures, the efficacy of prescribing more than three has been called into question (Livingston, 1972; Wilson, 1969). The most frequently reported drug combinations were Dilantin and a barbiturate, Dilantin and Mysoline, and Mysoline and phenobarbital. For children receiving only one medication, phenobarbital was the most frequently reported drug (54%) and Dilantin second (23%). All drug mentions for Valium and the succinimides (Zarontin and Celontin) are in combination with other drugs.

Table 4-7

Changes in Drug Regimen During the School Year[a]

Procedure	Hyperactivity (Children=52)		Convulsive Disorder (Children=44)	
	F	%	F	%
Put on medication[b]	15	28.8	4	9.1
Change in medication	12	23.1	12	27.3
Drug-free period[b]	19	36.5	1	2.3
Termination of drug treatment	14	26.9	2	4.5

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[a] Tabulated from parent interviews.

[b] Estimations.

Table 4-9

Daily Dosage of the Drugs Most Frequently Prescribed for Convulsive Disorders[a]

Drug	Children	Median (mg/day)	Range (mg/day)
Dilantin	27	100.0	25-200
Phenobarbital	25	60.0	10-160
Mysoline	13	300.0	50-750
Mebaral	6	96.0	64-200
Valium	6	6.5	4-14

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[a] Tabulated from parent interviews.

Table 4-8

Seizure History[a]

Item	Convulsive		Convulsive/Hyperactive	
	F	%	F	%
Does your child still have seizures or convulsions?	(children=42)		(children=10)	
Yes	16	38.1	2	20.0
No	25	59.5	7	70.0
Uncertain	1	2.4	1	10.0
How often does your child have seizures?	(children=16)		(children=2)	
Daily	5	31.2	0	0.0
Weekly	1	6.3	0	0.0
Monthly	4	25.0	0	0.0
Yearly	4	25.0	1	50.0
Other	2	12.5	1	50.0
When was the last time your child had a seizure or convulsion (months)?[b]	(children=26)		(children=8)	
1 - 3	3	11.5	2	25.0
4 - 6	5	19.2	0	0.0
7 - 9	1	3.9	1	12.5
10 - 12	3	11.5	0	0.0
13 - 24	7	26.9	2	25.0
25 - 36	5	19.2	0	0.0
37 - 48	0	0.0	2	25.0
49 - 60	2	7.7	1	12.5
Does (did) your child just have seizures or convulsions when hr/she has a fever?	(children=41)[c]		(children=10)	
Yes	8	19.5	1	10.0
No	33	80.5	8	80.0
Uncertain	0	0.0	1	10.0

---

[a] Tabulated from parent interview.

[b] Question pertains to only those parents that said their child was seizure-free.

[c] Data not available for one child.

Dosage and Schedule

Almost all antiepileptic drug regimens were in divided dosages, with 66% administered three or more times per day (see Figure 4-3). It has been demonstrated that divided dosages are necessary for maintenance of constant serum levels (Svensmark & Buchthal, 1964). Combining multiple drug regimens when appropriate, CD children received medication at the following times: morning (95%), noon (51%), afternoon (26%), supper (19%), and evening (95%). Teachers reported in Phase Two that only 9% of the CD children received medication at school.

The median daily dosages of Dilantin, phenobarbital, and Mysoline are presented in Table 4-9, and are characteristic of clinical practice (Livingston, 1972). It should be pointed out that there is considerable variation across individuals in terms of dosage of medication and seizure control.

The estimated median age at onset of drug treatment for CD children was early—2.2 years—and median duration of treatment was 2.5 years. All children were receiving medication at interview except two. One was diagnosed as having subclinical seizures, i.e., there were no overt seizures, but therapy was discontinued when side effects developed. The other child, treated for febrile seizures, had clinically improved.

Side Effects

Side effects were reported by 39% of the parents, and for 38% of the total number of drugs. The relative frequency of side effects for the five most frequently reported drugs were as follows: Dilantin (48%), phenobarbital (28%), Mysoline (39%), Valium (50%) and Mebaral (33%). (The low incidence of somatic side effects and the fact it is inexpensive make phenobarbital one of the most preferred antiepileptic drugs [Livingston, 1972].) Side effect reports must be qualified to some degree. First, the majority of anticonvulsants for which untoward reactions were reported were used in combination with other drugs. Therefore, there may have been some confusion in identifying the causal agent. Second, side effect reports were unprompted, i.e., parents were not asked if specific changes took place. It is possible, therefore, that some side effects were either unreported or unrecognized as a product of drug treatment.

The most frequently reported side effects of Dilantin were gingival hyperplasia (excessive growth of gum tissue), ataxia (unsteady and uncoordinated walk with a wide base), and Dilantin intoxication. The latter is characterized by nystagmus (involuntary rapid movement of the eyeball), ataxia, lethargy, dysarthria (inarticulate, thick, or slurred speech), and, at high dosages, acute confusional states (Kutt, 1964). Gingival hyperplasia was reported for 15% of the children who received Dilantin; Livingston (1972) put the frequency of occurrence for children at 40%. Ataxia was also reported for 15% and was described by one parent as follows: "If he has too much [Dilantin], he'll act like he's drunk." One child developed hirsutism (excessive growth of body hair) and another, dysarthria. Three children were made drowsy. Of the side effects discussed, most are dose related, with the exception of hirsutism, which is frequently irreversible, and gingival hyperplasia (Livingston, 1972). However, there is some evidence that gingival hyperplasia may be dose related (Little, Girgis, & Masotti, 1975).

HA and changes in termperament that parents described as mean and aggressive were reported for 20% of the children treated with phenobarbital. The increased restlessness produced by the drug may not be "true HA" for most children so affected (Stores, 1975). Livingston (1972) states that the frequency of occurrence of this reaction ranges from 15-20% and is not affected by altering the dosage. The behavioral changes produced by phenobarbital may be an even greater handicap than the seizures (Schain, 1972). Because the drug may exacerbate the disorder, it is contraindicated for HA-CD children (Millichap, 1969). It is believed that Mebaral, which is partially transformed into phenobarbital during the metabolic process, is less likely to produce these behavioral changes (Livingston, 1972). One of the six HA and one of the two HA-CD children who received Mebaral did develop behavior problems. One mother said the side effects were: "HA, aggressiveness, and an inability to attend." Drowsiness, reported by two parents, is a frequent side effect of phenobarbital for which the child usually develops a tolerance within two to three weeks after the onset of treatment.

Ataxia was the most reported side effect of Mysoline. Drowsiness, said to be the most common side effect of this drug, was reported only once. As with phenobarbital, tolerance usually develops within two to three weeks.

As the following observation illustrates, there may be only a slight difference between toxic and therapeutic serum levels: "It [Dilantin] seems to build up once in a while and he goes into an overdose—his balance goes; he's out of it. He is delirious for 3-4 days and runs a high termperature....We have to walk a fine line with Dilantin dosages." The parent may not always be adequately informed about these side effects. For example, when asked if she had any unanswered questions about her child's medication [Dilantin], one mother asked, "I'd like to know....why he staggers around so in the mornings." The dose of antiepileptic drug(s) necessary to achieve satisfactory control of fits may also impair cognitive performance. Depending upon the severity and frequency of seizures, it may be better for the child to experience infrequent seizures at a lower dose than be mentally handicapped by a larger one (Crowther, 1967; Dekaban & Lehman, 1975; Livingston, 1972; Reynolds, 1975; Stores, 1975). Such decisions may be quite difficult to make. For example, one child having 5-7 grand mal seizures per day was receiving at least four drugs in an attempt to control the frequency of seizures. While hospitalized for pneumonia, the number of different drugs was reduced to include Mysoline and Mebaral. In what must be considered an understatement the mother said, "...off Mysoline her balance returned to the point where she could once again walk. The teacher also noticed it." About another child on multiple drugs for minor motor seizures and whose drug regimen was being reduced, his mother said, "Each time he comes off another pill learning increases and the school has less problems."

Referral

Only four of the parents reported referral to a physician about their child's seizures by another person; and, in all but one case, the referral was by one physician to another. Due to questionnaire design the medical specialties of the physicians involved were not ascertained. Livingston (1972) points out that the teacher may be instrumental in referring children with seizures, particularly types without convulsive movements, e.g., petit mal or psychomotor. The early age at onset of drug treatment and the low prevalence of these types of seizures may account in part for the absence of school referral among children in ECSE programs.

Change in Medication

Twelve (27%) of the parents reported changes in medication during the school year; for all but two the change involved antiepileptic drugs. Half of the changes were reductions in the number of drugs prescribed as a result of clinical improvement. Only five (14%) of the CD children had actual substitutions of one drug for another. As might be expected, the most frequent reasons for doing so were side effects and therapeutic failure.

Follow-Up of Drug Treatment

Three-fourths of the parents of CD children said their child had had an office visit within the last three months, and over 90% reported at least two office visits per year. Because follow-up involves a number of concerns, including toxicity, compliance, therapeutic response, and social-emotional development, minimal criteria for physician contacts and adequate monitoring are difficult to determine. Because serum level analysis is important in the management of children receiving antiepileptic drugs, Kutt (1974) suggests one or two analyses per year for the well-controlled, seizure-free patient. He also recommends serum analysis for patients with signs of toxicity, very young patients for whom it is difficult to assess the early signs of toxicity, and patients whose seizures were previously controlled. Kutt also points out that nystagmus, the earliest sign of Dilantin toxicity, is a less reliable sign in children than in adults because of diagnostic problems. Livingston (1972) says the minimal criterion for physician contact during follow-up is at least one office visit every six months for patients who are seizure-free. Gordon (1976) feels follow-up should also include consideration of the possible termination of medication in patients who have been seizure-free for a period of one to two years.

Two of the children reportedly received a break in medication and one a reduction in dosage to assess therapeutic necessity; in all cases, termination resulted in the reoccurrence of seizures. (One of the children who received a drug-free period did so at age 11 months.) One parent of a HA-CD child terminated medication on her own initiative, but for the other children the physician directed the procedure. However, this is an incomplete description of termination efforts and considerations because eight parents made comments about either decreasing dosage, reducing the number of medications, or having EEG examinations for their child to assess the desirability of terminating drug treatment. As with parents of HA children, many of these parents also felt guilty about having to administer medication and wished their children did not have to take it.

Termination of Drug Treatment

The termination of drug treatment for epilepsy is usually a lengthy procedure (Livingston, 1972). If the antiepileptic drugs are well tolerated, the physician may wait until the child has been seizure-free four years before starting to discontinue medication. Dosage level is then gradually reduced over a one- to two-year period. Abruptly terminating medication could precipitate seizures or grand mal status. Termination may be considered after a shorter seizure-free period if medication is producing toxic reactions at therapeutic doses or if the administration of medication is contributing to emotional problems. A number of variables influence the decision to terminate treatment, including seizure type, severity, dosage, and whether the seizure-free period overlaps the onset of puberty.

Compliance and Dosage Manipulation

Twelve of the parents said their physician permitted them to change dosage (see Table 4-5). Data were not systematically collected about how this was done, but seven parents did volunteer some information. The explanations for changing dosage were clinical improvement (reduction), to prevent overdose (reduction), and to prevent possible seizures during fever (increase). (Half of these parents also reported giving medication at special times.) Of the 10 who said they gave extra medication, six did so during fever, two when the child was having a "spell" of seizures, and two parents did not specify the circumstances.

Over half of the parents of CD children reported forgetting to give medication, but only 16% forgot as often as three to four times per month. This should be considered a conservative estimate of noncompliance because patients identified as not receiving medication through serum analysis frequently deny (or their parents deny) noncomplaint behavior (Kutt, 1974). Not giving medication or forgetting to do so may precipitate seizures, as exemplified by this statement: "I ran out on Friday and couldn't get any more until Monday. When he's off it that long he has one [a seizure]." Forgetting even a single dose can be traumatizing for both parent and child. One mother said: "I never forget at night. Once I did and he almost died from swallowing his tongue....I never forgot since that."

Seizures During Fever

Eight (20%) of the children experienced seizures only during fevers, and all but one of these children received medication on a continuous basis. Livingston (1972) separates seizures associated with fevers into two groups: simple febrile convulsions, and epileptic seizures precipitated by fever. The treatment strategy and prognosis for the two disorders are quite different. By the age of four or five most children outgrow febrile convulsions, thus having an excellent prognosis. For the seizures precipitated by fever, however, treatment and prognosis are similar to epilepsy in general. Although drug therapy appears to be of little value in the management of simple febrile convulsions, continuous drug treatment is very important for children with epileptic seizures precipitated by fever because the vast majority develop afebrile seizures (epilepsy) by the age of five. Because parent reports of the first febrile episode are so unreliable and medical records were inaccessible, no attempt was made to obtain a differential diagnosis for the children in this survey.

Possible Difficulty in Determining Toxicity

When asked about specific traits, many parents characterized their CD children as having poorer coordination or balance, being more apt to have blank stares, and more likely to be confused or off in another world than other children. Few, however, reported drowsiness (see Table 4-10). The intercorrelations among the five possible indices of toxicity are presented in Table 4-11. Only a few of the parents said their child was not like that before medication. However, due to the early age at onset of drug treatment and the rapidity of development during the preschool years, many parents were uncertain, for the most part, what their child's behavior had been like before the onset of drug treatment. It would be presumptuous to infer that these problems are the result of medication because many of the children have a number of other handicapping conditions. For example, teachers reported in Phase Two that 75% of the CD children have clearly identifiable handicaps, with mental retardation, brain damage, cerebral palsy, and hyperactivity being the most common. Because these children are not only young but developmentally delayed, it is important to distinguish toxicity from the child's developmental problems and handicaps. Verbal reports of double vision, confusion, drowsiness, or impaired performance are much less probable (and in many cases, not even possible) than in older children or adults. Also, mental performance can be greatly reduced by heavy medication before the child develops clear signs of toxicity (Dekaban & Lehman, 1975; Reynolds, 1975; Stores, 1975). It would be incorrect to conclude that antiepileptic drugs are an undesirable form of treatment. Quite the contrary, drugs such as Dilantin and Tridione are truly miracles of modern drug research. But, due to the age of the children and their developmental retardation, the importance of adequate monitoring is increased. Difficult decisions may have to be made concerning seizure frequency and deterioration in mental performance, decisions in which the school may be able to play a valuable role (Sprague & Gadow, 1976).

Problems and Unanswered Questions

Few parents had problems with their child's physician or the school (see Table 4-6). The most frequent complaints about their physicians concern information and rapport, and with the school, the quality of educational programs. As with parents of HA children, the parents of CD children wanted more information from the physician about medication and their child's disorder.

Table 4-10

Indications of Possible Drug Toxicity[a]

Item[b]	Convulsive (Children=44)		Convulsive/Hyperactive (Children=14)	
	F	%	F	%
Do you think your child is (was) more sleepy or drowsy?				
Yes	8	18.2	0	0.0
No	35	79.5	14	100.0
Uncertain	1	2.3	0	0.0
Does (did) your child have more blank stares?				
Yes	22	50.0	7	50.0
No	21	47.7	7	50.0
Uncertain	3	2.3	0	0.0
Does (did) your child appear to be off in another world?				
Yes	14	31.8	7	50.0
No	27	61.4	7	50.0
Uncertain	3	6.8	0	0.0
Does (did) your child have poorer coordination or balance?				
Yes	32	72.7	10	71.4
No	12	27.3	4	28.6
Does (did) your child appear to be more confused?				
Yes	16	36.4	5	35.7
No	25	56.8	9	64.3
Uncertain	3	6.8	0	0.0

---

[a] Tabulated from parent interviews.

[b] Parents were asked to draw comparisons to other children in general.

Table 4-11

Intercorrelations Among the Five Possible Indices of Toxicity

(Children=44)

Variables	1	2	3	4	5
1. Sleepy or Drowsy	--	.24	.06	.16	.01
2. Blank Stares		--	.39	.00	.38
3. Off in Another World			--	.02	.50
4. Poorer Coordination or Balance				--	.25
5. Confused					--

One exasperated mother said she intended to track down a Parke-Davis detail man to find out more about Dilantin. Perhaps the most disquieting revelation was the nature of teacher training about drug treatment and epilepsy. From an earlier phase of the study, it was reported that only 55% of the ECSE teachers received formal training on managing grand mal seizures in the classroom and even fewer (40%) on managing the child's peers (Gadow, 1976). About this situation one mother said: "They [the school] were afraid of what the seizures were going to be like." Most of the teachers' information was obtained from fellow staff members or personal experience, as illustrated by the following remark, "I think they [the school] need an education on how to deal with medicine....The parents try to explain it to the teacher. Teacher got a real education when she [the respondent's daughter] had a convulsion in school."

Comparison Between HA and CD Children

By collecting data about drug treatment for both HA and CD children, a number of contrasts can be made. For this sample of children from ECSE programs, the two disorders are similar in terms of prevalence of drug treatment, perceived helpfulness of medication, and occurrence of side effects.

Interestingly, HA and CD children are quite similar in the frequency and recentness of physician monitoring, and are not significantly different in terms of physician-approved dosage changes, administration of extra medication at special times, or forgotten dosages. Nor do the parents of HA and CD children differ significantly in the frequency of problems with physicians and school personnel and unanswered questions about medication. Comparing HA and CD children, the HA children received fewer drugs during the school year, fewer drug combinations, and more were taken off drug treatment; they also differ significantly in referral, parent attitudes about dosage changes, and drug-free periods. A significantly greater number of HA than CD children are referred for medical evaluation or to determine the advisability of medication. The agents of referral also differ dramatically: for CD children they are primarily physicians while for HA children they are many different people from medical, educational, and other settings. A significantly greater number of parents of HA children feel the amount of medication should be changed, even when HA children who are off medication are partialled out. For both groups of parents the primary reasons for dosage change are to enhance therapeutic response and reduce side effects. A significantly greater number of HA children receive drug-free periods to assess the necessity of medication, but for CD children these drug-free periods are more apt to be at the suggestion of the child's physician.

V

EXPERIENCE, ATTITUDE, AND TRAINING

Almost all early childhood special education (ECSE) teachers (94%) report experience with children receiving psychotropic and anticonvulsant drug therapy for either learning, behavior, or CD. This is true for both teaching experience in general and for children encountered during the year of the survey. Although most teachers reported limited experience in ECSE programs, 89% indicated they had taught preschool children receiving drug therapy for hyperactivity (HA) and 85% for convulsive disorders (CD). They also report experience with children who had grand mal seizures (20%) and petit mal seizures (53%) in their classroom. A third also indicated that either they or another school staff member had given medication to their students during the school year. During the year of the survey, 81% of the teachers taught children receiving psychotropic or anticonvulsant drugs. Many (63%) of the teachers reported more than one child on drug treatment (see Figure 5-1) with prevalence of drug treatment per teacher ranging from 3.4% to 75%. Over half of the teachers (54%) had children in their classes receiving medication for CD and 60% had children receiving medication for HA. Many teachers had more than one child on medication for each disorder (see Table 5-1).

Most teachers (94%) indicated experience interacting with physicians or parents regarding different aspects of the drug regimen, however, interaction with the physician was infrequent.

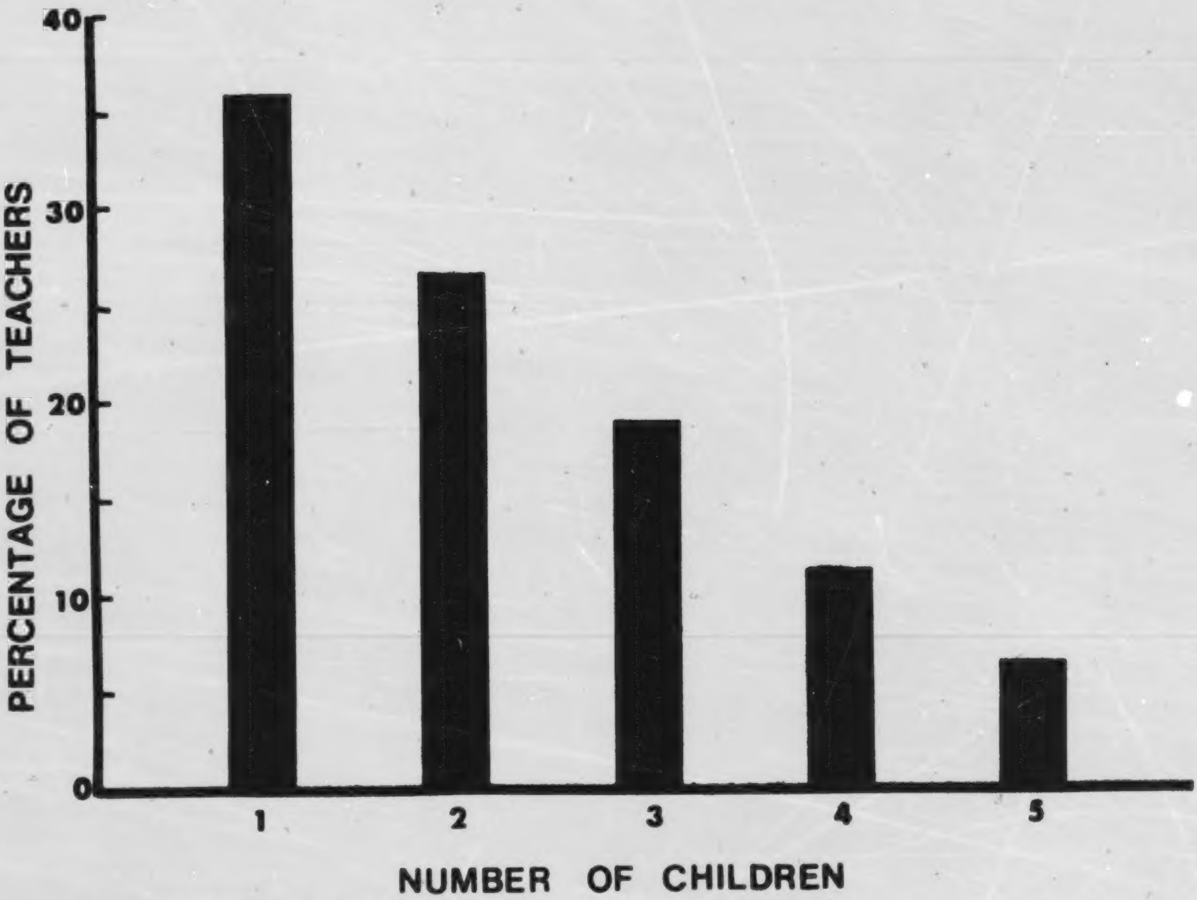

Fig.5-1 Number of children reportedly receiving medication per teacher (teachers=157)

Table 5-2 describes these interactions with parents and physicians for those teachers who reported working with children receiving medication. Items are arranged from greatest to least amount of experience. Interaction with the physician is much less frequent than with parents and, for all items, contact with the physician is reported by less than a third of the teachers. This lack of direct contact with the physician has been reported in other studies (Robin & Bosco, 1973; Loney & Ordona, 1975; Weithorn & Ross, 1975; Gadow, Note 1). Almost all the teachers had talked with parents about medication and the reason for which it was prescribed. However, over a third had never worked with a physician or parent on the evaluation of different dosage levels, the decision to use medication, or the termination of drug therapy.

Attitudes About Role in Drug Treatment

ECSE teachers are in strong agreement with respect to involvement in the diagnostic, drug monitoring, and follow-up phases of the drug regimen for HA. For the diagnostic phase, almost all teachers agree that they should take an active role in the referral process and assist the physician

Table 5-1

Number of Children Reported Receiving Drug Therapy for Specific Disorders Per Teacher

(Teachers = 157)[a]

Disorder	Frequency	Percent
Hyperactivity[b] (teachers = 121)		
1	67	55.4
2	34	28.1
3	14	11.6
4	5	4.1
5	0	0.0
6	1	.8
Total	121	100.0
Convulsive disorders[c] (teachers = 108)		
1	67	62.1
2	28	25.9
3	8	7.4
4	4	3.7
5	1	.9
Total	108	100.0
Other[d] (teachers = 17)		
1	16	94.1
2	1	5.9
Total	17	100.0

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[a] Number of teachers who reported children receiving medication.

[b] Includes 28 children who also received drug therapy for convulsive disorders (children = 203).

[c] Includes 28 children who also received drug therapy for hyperactivity (chidren = 168).

[d] Includes three children who also received drug therapy for hyperactivity (children = 18).

Table 5-2

Teacher Experience Interacting with Parents and Doctors Concerning Drug Therapy[a]

(Teachers = 195)[b]

Item	Parent		Doctor		Doctor & Parent		No Interaction	
	F	%	F	%	F	%	F	%
Reason the child was receiving medication (n=191)	114	59.7	7	3.6	54	28.3	16	8.4
Information about the medication (n=189)	103	54.5	8	4.2	53	28.1	25	13.2
Diagnosis of the disorder for which medication was prescribed (n=188)	71	37.8	15	8.0	51	27.1	51	27.1
Side effects of the medication (n=190)	87	45.8	12	6.3	38	20.0	53	27.9
Monitoring the effect of different dosage levels on the classroom behavior of the child (n=189)	72	38.1	8	4.2	43	22.8	66	34.9
Decision to use medication (n=190)	65	34.2	6	3.2	49	25.8	70	36.8
Termination of the medication (n=190)	70	36.8	5	2.6	29	15.3	86	45.3

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[a] Tabulated for teachers who had experience teaching preschool handicapped children receiving drug therapy for learning, behavior or convulsive disorders.

[b] Smaller n's indicate missing data.

Table 5-3

Teacher Attitude Toward Involvement in the Diagnostic Phase of Drug Therapy for Hyperactive Children

(Teachers = 207)[a]

Item	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion	
	F	%	F	%	F	%	F	%	F	%
Participate in staffings which recommend that a child see a doctor when medication may be appropriate. (N=206)	136	66.0	69	33.5	1	.5	0	0	0	0
Have direct contact (letter, telephone, meeting) with physician concerning diagnosis and decision to use medication. (N=206)	92	44.7	97	47.1	17	8.2	0	0	0	0
Suggest to parents that their child should see a physician when you suspect that the child might benefit from medication. (N=206)	79	38.3	108	52.4	15	7.3	2	1.0	2	1.0
Suggest to parents an alternative to medication therapy. (N=205)	53	25.8	112	54.6	35	17.1	1	.5	4	2.0
Suggest to parents that their child needs medication when you feel medication is appropriate. (N=204)	27	13.2	68	33.3	79	38.7	25	12.3	5	2.5
Give your opinion whether or not a child needs medication if the parent asks that question. (n=206)	27	13.1	87	42.2	73	35.4	17	8.3	2	1.0
Suggest to parent the name of a particular medication that you believe may benefit the child. (N=206)	4	1.9	18	8.7	73	35.5	103	50.0	8	3.9

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[a] Smaller N's indicate missing data.

in the diagnosis of HA (see Table 5-3). Teachers are split on whether or not they should suggest the necessity for medication, but almost all agree that they should not suggest the name of a particular medication. There is almost unanimous agreement for all items regarding the dosage adjustment phase (see Table 5-4). Teachers feel they should be well informed of the details of drug therapy and participate in the evaluative process. Almost all teachers would like direct contact with the physician (by letter, telephone, or meeting) about the adjustment of dosage. Dissention begins when the teacher is asked to take a directive role, e.g., suggesting a change in dosage; only 19% agreed that they should be involved in this decision. In the follow-up phase (see Table 5-5), teachers agree that they should help parents acquire behavior management techniques, use therapeutic approaches concomitant with medication, participate in the decision to terminate drug therapy, and even suggest "drug-free periods," i.e., periodic breaks in medication to assess therapeutic benefit.

As in the management of HA, teachers are in strong agreement about their participation in drug treatment for CD (see Table 5-6). They want to be well informed of the seizures and the reason for which each drug is prescribed in the case of multiple drug regimens. In reporting the reason for medication, a number of the teachers of CD children were uncertain why psychotropic drugs were being prescribed or why different drugs were prescribed for behavior problems and CD. Almost all teachers feel they should report the occurrence of seizures and of side effects of antiepileptic drugs, and refer children they suspect of having CD.

Teacher attitudes about drug treatment are presented in Table 5-7. Poor communication between physician, teacher, and parent was considered a major problem with children receiving medication by

Table 5-4

Teacher Attitude Toward Involvement in the Dosage Adjustment Phase of Drug Therapy for Hyperactive Children (Teachers = 207)[a]

Item	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion	
	F	%	F	%	F	%	F	%	F	%
Be informed that a child is receiving medication and the reason for which it was prescribed. (N=206)	197	95.6	8	3.9	1	.5	0	0	0	0
Be informed of possible side effects of the medication. (N=205)	181	88.3	24	11.7	0	0	0	0	0	0
Report the effects of different dosage levels to either parent or doctor. (N=205)	178	86.8	25	12.2	2	1.0	0	0	0	0
Be informed of the specific medication the child is receiving. (N=206)	177	85.9	28	13.6	1	.5	0	0	0	0
Report side effects of the medication to either the parent or doctor. (N=206)	167	81.1	38	18.4	1	.5	0	0	0	0
Assist in evaluation of effects of different trial dosages on the child's classroom behavior. (N=206)	130	63.1	74	35.9	2	1.0	0	0	0	0
Have direct contact with the doctor (letter, telephone, meeting) concerning the effects of different trial dosages on classroom behavior. (N=206)	130	63.1	71	34.5	5	2.4	0	0	0	0
Give the parent your evaluation of the medication on the child's behavior if the parent requests that information. (N=206)	76	36.9	121	58.7	5	2.4	3	1.5	1	.5
Suggest a change in dosage to the parent or doctor if you think it is best for the child. (N=206)	42	20.4	124	60.2	28	13.6	11	5.3	1	.5

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[a] Smaller N's indicate missing data.

Table 5-5

Teacher Attitude Toward Involvement in the Follow-Up Phase of Drug Therapy for Hyperactive Children

(Teachers = 207)[a]

Item	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion	
	F	%	F	%	F	%	F	%	F	%
Assist the child in developing self-management behaviors along with medication therapy. (N=206)	144	69.9	61	29.6	0	0	0	0	0	0
Teach parents behavior management techniques to help them manage their child. (N=206)	140	68.0	61	29.6	3	1.4	0	0	2	1.0
Help parents find community resources to assist with their problems concerning their hyperactive child. (N=205)	132	64.4	70	34.1	3	1.5	0	0	0	0
Participate in the decision to end medication. (N=206)	71	34.5	121	58.7	12	5.8	0	0	2	1.0
Suggest to parent or doctor "drug holidays" (periodic breaks in the medication) to see if the child still requires medication. (N=205)	54	26.3	114	55.6	26	12.7	8	3.9	3	1.5

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[a] Smaller N's indicate missing data.

Table 5-6

Teacher Attitude Toward Involvement in the Anticonvulsant Drug Regimen

(Teachers = 207)

Item	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion	
	F	%	F	%	F	%	F	%	F	%
Be told what behaviors to expect if the child has a seizure.	196	94.7	10	4.8	1	.5	0	0	0	0
Report to the physician or parents the occurrence of seizures.	192	92.7	14	6.8	1	.5	0	0	0	0
Be informed of the reason for each drug if multiple drugs are prescribed.	173	83.6	34	16.4	0	0	0	0	0	0
Report medication side effects that impair classroom performance.	178	86.0	28	13.5	1	.5	0	0	0	0
Assist in the diagnosis of convulsive disorders by describing seizures you see.	146	70.5	56	27.1	3	1.4	1	.5	1	.5
Notify the parent of a child you suspect of having a convulsive disorder.	168	81.1	29	14.0	8	3.9	2	1.0	0	0

Table 5-7

Teacher Attitude Toward Medication Usage

(Teachers = 207)[a]

Item	Strongly Agree		Agree		Disagree		Strongly Disagree		No Opinion	
	F	%	F	%	F	%	F	%	F	%
Poor communication between parent, physician and teacher is a major problem with children receiving medication. (N=207)	82	39.6	87	42.0	25	12.1	2	1.0	11	5.3
I really don't know when medication is the right thing to do for hyperactivity. (N=205)	27	13.2	110	53.7	55	26.8	7	3.4	6	2.9
"Drug" is not a good word to use when referring to children's medication. (N=204)	42	20.6	84	41.2	54	26.5	11	5.4	13	6.3
Too many children are being placed on medication for hyperactivity. (N=206)	47	22.8	77	37.4	44	21.3	4	2.0	34	16.5
Hyperactive children that I encounter can usually be managed effectively with behavior management techniques without medication. (N=206)	17	8.3	93	45.1	64	31.1	7	3.4	25	12.1
Physicians in our community tend to overprescribe medication. (N=204)	26	12.7	46	22.6	87	42.7	7	3.4	38	18.6
Parents sometimes feel that their child should be on higher dose that I think is necessary. (N=202)	17	8.4	59	29.2	73	36.1	7	3.5	46	22.8
All hyperactive children should be given a trial dosage of medication to see if it can help them. (N=207)	15	7.3	31	15.0	110	53.1	46	22.2	5	2.4

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[a] Smaller N's indicate missing data.

most (82%) of the teachers. Many teachers (67%) agreed that they did not know when drug treatment was appropriate for HA; however, 30% felt they could determine the necessity for medication. Data was not collected on exactly what criteria each teacher used to make that judgment, but presumably unresponsiveness to special education teaching techniques would be a factor. "Drug" was not considered a good word for children's medication by a number of teachers (62%) but one teacher commented that using "drug" may convey to parents the seriousness of this treatment modality. Teachers were asked several questions about the possible misuse of medication, including whether or not they thought too many children were receiving drugs for HA. The majority (60%) of teachers felt medication was overused (17% had no opinion) and a third agreed that physicians in their own community overprescribed drugs for HA and that parents sometimes felt their child should be on a dosage higher than necessary. Behavior management techniques were considered an effective way to handle most HA children by half of the teachers. Although Wender (1971) has argued that all children diagnosed as HA should be given a trial dose of medication to see if it will help the child, few (22%) teachers agreed with that diagnostic procedure.

Teacher Training about Drug Therapy, Hyperactivity, and Convulsive Disorders

Much of the knowledge and training teachers received regarding the use of medication with children came from personal experience, i.e., teaching experience, reading, television, etc., or from fellow staff members. The least cited mode of training was inservice. Topics about which teachers did acquire information concerning HA, CD, and medication are presented in Tables 5-8 and 5-9; items are arranged from most to least amount of training. Included in the list of topics are four of the five most frequently prescribed drugs from an earlier survey of ECSE programs (Gadow, Note 1). Although a number of teachers reported college training about the causes of HA and using behavior modification with HA children, few received any college training about the role of the teacher in the drug regimen, e.g., assisting the physician in the diagnosis of HA or the evaluation of different drug dosage levels. A number of teachers reported college training about grand mal and petit mal seizures but few had acquired in-depth knowledge about CD, as evidenced by the response to the items "termination of medication for CD" and "febrile seizures." The latter are peculiar to early childhood (Livingston, 1972) and are quite prevalent compared to other CD. Considering the prevalence of drug treatment for CD with children in ECSE, an alarmingly large proportion of teachers (44%) received no college training about managing grand mal seizures in the classroom or about managing the classmates of a child having a seizure at school (60%). As for medication, very few teachers had any college training about the most frequently prescribed drugs, with the exception of Ritalin. Between 41% and 76% said they had no training about or knowledge of Mellaril, Dilantin, or Mysoline. Surveys of elementary school teachers have also pointed out the inadequacy of teacher training. Bosco and Robin (1976) report that elementary school teachers receive very little formal instruction on Ritalin and its use for HA and have little knowledge of its specific properties.

In response to the teacher training needs identified in this study, the researcher and a colleague have developed a graduate level course, "Drugs and Special Education," for the Department of Special Education at the University of Illinois. A course outline (see Appendix O) has been made available to other teacher trainers who are interested in this topic but find it difficult to locate

Table 5-8

How Teachers Received Specific Training or Acquired Definite Knowledge in Regard to Hyperactivity[a]

(Teachers = 207)[b]

Item	College		Inservice Training		Staff Members		Personal Experience		No Training	
	F	%	F	%	F	%	F	%	F	%
Behavior modification techniques and hyperactivity. (N=207)	164	79.2	58	28.0	82	39.6	116	56.0	8	3.9
Working with parents of hyperactive child. (N=207)	78	37.7	39	18.8	76	36.7	150	72.5	21	10.1
Causes of hyperactivity. (N=207)	139	67.1	30	14.5	64	30.9	119	57.5	26	12.6
Local school district policy for giving medication at school. (N=207)	5	2.4	44	21.3	116	56.0	54	26.1	33	15.9
Methylphenidate (Ritalin®): Effects and use with children. (N=206)	70	34.0	21	10.2	57	27.7	98	47.6	57	27.7
How teacher can assist the physician in the diagnosis of hyperactivity. (N=206)	47	22.8	21	10.2	53	25.7	85	41.3	68	33.0
Assisting the doctor in the evaluation of the effects of different drug dosage levels on classroom behavior. (N=206)	23	11.2	8	3.9	37	18.0	85	41.3	69	43.2
Thioridazine (Mellaril®): Effects and use with children. (N=207)	26	12.6	8	3.9	19	9.2	42	20.3	138	66.7

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[a] Teachers were permitted multiple responses.

[b] Smaller N's indicate missing data.

Table 5-9

How Teachers Received Specific Training or Acquired Definite Knowledge in Regard to Convulsive Disorders[a]

(Teachers = 207)[b]

Item	College		Inservice Training		Staff Members		Personal Experience		No Training	
	F	%	F	%	F	%	F	%	F	%
Petit mal seizures. (N=207)	129	62.3	23	11.1	52	25.1	94	45.4	20	9.7
Grand mal seizures. (N=207)	134	64.7	22	10.6	42	20.3	85	41.1	25	12.1
How to manage a child having a grand mal seizure in the classroom. (N=207)	115	55.6	19	9.2	52	25.1	70	33.8	28	13.5
How to manage the classmates of a child who has a seizure in their presence. (N=207)	82	39.6	14	6.8	40	19.3	86	41.5	46	22.2
Social and emotional adjustment of the child with convulsive disorders. (N=207)	92	44.4	12	5.8	33	15.9	80	38.6	56	27.1
Diphenylhydantoin (Dilantin^{R}): Effects and use with children. (N=206)	40	19.4	8	3.9	41	19.9	77	37.4	84	40.8
Termination of medication for convulsive disorders. (N=204)	22	10.8	5	2.5	23	11.3	41	20.1	133	65.2
Primidone (Mysoline^{R}): Effects and use with children. (N=204)	18	8.8	4	2.0	12	5.9	23	11.3	158	77.5
Febrile seizures. (N=205)	20	9.8	1	.5	7	3.4	17	8.3	165	80.5

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[a] Teachers were permitted multiple responses.

[b] Smaller N's indicate missing data.

necessary articles, which are scattered throughout the education, psychology, psychiatry, pediatric, neurology, and sociology journals (Sprague & Gadow, 1976). The course provides teachers in training with specific information about psychotropic and antiepileptic drugs, use in therapy, effects on learning, behavior, and cognition, side effects, and the role of the teacher in the drug regimen. An informal survey of drug researchers conducted by Sprague & Gadow (1976) about the availability of a course for teachers on drug treatment with children revealed that there were no such courses in U.S. colleges of education. If teacher training in this area is to be taken seriously, much remains to be developed, including text books, reference materials, films, and inservice training manuals. As for the latter, Sprague and Gadow have developed such a manual for their two-day institute, "Drug Therapy with Children," sponsored by the Council for Exceptional Children.

VI

ROLE OF THE TEACHER IN DRUG TREATMENT

A description of teacher involvement in drug treatment through interactions with parents, physicians, and fellow staff members was obtained from medication questionnaires completed by the teacher for each child who received drug treatment during the school year. Medication questionnaires were returned for 114 hyperactive (HA) children and 101 convulsive disordered (CD) children (see Table 6-1). Although data were also collected on hyperactive-convulsive disordered (HA-CD) children as well as for children with other disorders, e.g., sleep problems, nervousness, enuresis, etc., this discussion focuses primarily on HA and CD.

The way teachers find out which children in their class are taking medication and the name of the drug administered is presented in Tables 6-2 and 6-3. By far the most frequently cited source of information about whether a child is on medication is the parent, and, of those teachers who indicated a source for the identity of the drug, the child's parent is usually the informant (62%). A number of teachers report finding out about drug treatment indirectly. One teacher said, "We do not feel this child is hyperactive or distractible. We were never consulted about medication [Ritalin]. The only way we found out was by questioning the mother about his drowsiness [and lethargy]." Interestingly, school records were not cited very often as a source of information, and physicians were rarely mentioned. Teachers were asked to list the medication information on the school records. When compared to data collected from teacher questionnaires and parent interviews, the records were often dated and incorrect or, in many cases, lacked information about drug treatment altogether. Whether by word of mouth or a form completed at enrollment, the parent provides the initial awareness that drug treatment is being used with the child. To some teachers this was frustrating because a number of parents were unclear about the details of drug treatment. One teacher commented: "We do not have enough medical history on our children. We usually have to take the parents' word on medication that they give their children, and even then they usually seem unsure of the name . . . and the dosage." A number of teachers thought the parents did not know what the therapeutic response was supposed to be, and some said the parents did not even know what the medicine was for. Although it was reported in Chapter 2 that teacher drug reports were quite accurate, it would be inappropriate to infer that the medication information is easily accessible to the teacher, or on the tip of her tongue. The survey may have contributed greatly to teacher awareness of drug treatment, as the following comment illustrates: "I've shared this study with some parents and the school nurse. It has made us all more aware of the importance for us all to keep in contact and work together regarding medication. I've learned more about the medications just by answering the study's questions, e.g., case #142358 is being treated for seizures as well."

For each child about whom data were collected, teachers were asked if the child had any other clearly identifiable disorders or handicaps. Identification of such disorders was at the discretion of the teacher, who in all probability had access to diagnostic information because these early childhood programs are a special education placement. Teacher evaluations were available for 111 HA children and 50 had at least one other disorder concomitant with HA. A number of handicaps were reported, with the most frequent being brain damage (21), mental retardation (17), and learning disability (7). Of the 100 CD children teachers evaluated, 75 had at least one handicap concomitant with CD; the most frequent were mental retardation (38), brain damage (23), cerebral palsy (19), and HA (8).

Most (82%) of the children about whom data were collected in Phase Two were in ECSE for at least five months during the school year, and 71% for seven months or more. Because many districts were

Table 6-1

Disorders for which Medication Questionnaires Were Completed and Number of Teachers Returning Questionnaires Per Disorder

Type of Questionnaire	Children	Teachers
Hyperactivity	114	78
Hyperactivity (children also being treated for convulsive disorders)	18	16
Total	132	86
Convulsive disorders	101	66
Convulsive disorders (children also being treated for hyperactivity)	19	16
Total	120	76
General	16	14
Grand Total	268	118

Table 6-2

How Teacher Informed that Child was Receiving Medication

(Children=250)[a]

Source of Information	Frequency	Percent
Parent	176	70.4
School records (medical report, psychological report, enrollment forms)	40	16.0
School nurse	27	10.8
School staff member	13	5.2
Doctor	9	3.6
School psychologist	5	2.0
Other	7	2.8
Total[b]	277	

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[a] Data were not available for two children.

[b] Teachers were permitted multiple responses.

still in the process of expanding early childhood special education (ECSE) services, some programs may not have been active for a full nine months. This, plus staggered enrollment, late entries, children withdrawn from school, and teacher changes, account for much of the variability in the length of the school year. It is clear, however, that the duration of school placement for most children provided ample time for teachers to interact with parents and physicians, if the opportunity presented itself.

HYPERACTIVITY

In Phase Two, teachers were asked specific questions about three aspects of drug treatment: diagnosis of HA, evaluation of drug effects, including dosage adjustment, and the termination of treatment. Teacher participation in the diagnosis of HA was reported for 29% of the HA children and for five of the 18 HA-CD children. Unfortunately, the improper wording of one question prevented finding out how many children were actually placed on drug treatment during the school year. Therefore, it cannot be determined how many children were placed on drug treatment without any school involvement. The fact that this is a very real problem is witnessed in the following query from an ECSE teacher: "Why do doctors make prescriptions for medication without ever contacting the teacher? How can they judge the severity or nature of a child's disorder in the office, which is an unnatural, sterile, and frightening environment to all children?" Teachers reported making evaluations of the effect of the medication on the behavior for 61% of the HA children and 11 of the HA-CD children sometime during the school year. Drug treatment was terminated for 23 of the HA children before school ended, but in only 48% of these cases were the teachers involved in the process in any manner.

Teacher Participation in the Diagnosis of Hyperactivity

For 33 of the HA children, teachers reported some involvement in the diagnosis of HA, including referral procedures (see Table 6-4). The people with whom they interacted are listed in Table 6-5. Teachers suggested to either school staff members or parents that a physician be consulted about the behavior of three-fourths of these children prior to treatment. For many, the teacher said they were HA, and for 12 the teacher suggested that medication might help the child. These two acts, offering a diagnosis to a parent and suggesting a specific medical treatment, have generated considerable concern about the possibility of school personnel encouraging the use of drug treatment with children who should not be placed on medication (Bruck, 1976; Grinspoon & Singer, 1973; Ladd, 1970; Schrag & Divoky, 1975).

A closer look at the persons to whom these statements were made, however, shows that teachers suggested medication to five parents of HA children and said to nine that their child was HA. Without some record of what the teacher actually said to the parent and under what circumstances, it is difficult to conclude whether the teacher simply described the child's behavior using the term HA to denote motor restlessness, or implied a medical disorder that required medical intervention. Considering the literally thousands of articles that have been written about HA in both lay and professional journals, and particularly the coverage on television and in the newspapers, it would be naive to think that parents do not have some awareness of the disorder. The parent of a child being referred for medical consultation by the school will obviously inquire why the suggestion is being made. Although the distinction between telling a parent you "suspect" a medical problem and making a diagnosis is very important, there may be little difference in the impact it has upon the parent.

There is little defense for unilaterally suggesting that the child be placed on medication. But, as with the question of offering a diagnosis, without a description of the interaction and corroborative support, it is difficult to draw conclusions about inappropriate behavior. As already discussed, whether medication is explained as a medical possibility or recommended as the treatment

Table 6-3

How Teacher Informed of the Identity of the Medication

(Children=225)[a]

Source of Information	Frequency	Percent
Parent	110	48.9
School records (medical report, psychological report, enrollment forms)	29	12.9
School nurse	18	8.0
School staff member	8	3.6
Doctor	8	3.6
Other	6	2.7
Inappropriate reponse (listed actual name of medication)	51	22.7
Inappropriate response	6	2.7
Total[b]	236	

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[a] Data not available for 27 children.

[b] Teachers were permitted multiple responses.

Table 6-4

Teacher Participation in the Diagnostic Phase of the Drug Regimen for Hyperactivity[a]

Interaction	Hyperactive (children=33)[b]		Hyperactive-Convulsive (children=5)	
	F	%	F	%
Did you suggest the child be placed on medication?				
Yes	12	38.7	1	20.0
No	19	61.3	4	80.0
Did you suggest the child see a physician?				
Yes	23	74.2	2	50.0
No	8	25.8	2	50.0
Did you say the child was hyperactive?				
Yes	17	54.8	3	60.0
No	14	45.2	2	40.0
Did you evaluate the child's classroom behavior?				
Yes	31	96.9	5	100.0
No	1	3.1	0	0.0
Did you evaluate the child's behavior on a specific rating scale?				
Yes	3	9.1	2	40.0
No	30	90.9	3	60.0

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[a] Calculations based on teachers that indicated they had participated in the decision to use medication or in the diagnosis of hyperactivity.

[b] Smaller n's indicate missing data.

of choice, the impact on the parent may be quite similar. Telling a parent that you suspect her child has vision problems, measles, etc. implies a course of treatment simply from what we know about these disorders and how they are usually managed medically. Although recommending glasses may seem relatively innocuous and frequently correct from a probabilistic standpoint, not only may the child have a vision problem for which glasses are an inappropriate treatment, but parents may neglect getting a medical diagnosis, for whatever reason, leaving a serious medical problem undiagnosed and untreated. In like manner, motor restlessness, which is a characteristic of the HA syndrome, may be the symptom of a medical malady totally unrelated to HA, with serious consequences for the untreated. It should be noted that most teachers disagree with the idea of suggesting drug treatment (see Chapter 5) as indicated in the following remark: "I feel that I don't have the knowledge necessary to recommend the possibility of medication, or termination of it." It is some consolation to note that recommending drug treatment happens infrequently relative to the total number of HA children about whom data are available.

All but one of the teachers said they had evaluated the child's behavior as part of the diagnostic process. This is not unexpected in view of the fact that some form of evaluation of the child's behavior is a prerequisite to effective special education intervention. It should be pointed out, however, that for only seven of the children was an evaluation given directly to the physician. What is even more disappointing is the number of teachers who used some form of standardized assessment. Only one teacher evaluated the child's behavior on a rating scale which was then sent to the physician. There is a great need for such assessment tools. One teacher said: "I think the classroom observation should be more scientific, i.e., exactly what to look for, for how long a period, etc. I need more accurate information so I could return more accurate information to the parents and physician." Conners' Teacher Rating Scale has repeatedly been shown to be an effective screening device in the diagnosis of HA (Sleator & Von Neumann, 1974; Sleator & Sprague, in press; Sprague & Sleator, 1973). Not only does the rating scale provide a standard form of communication between physician and teacher, but the scale has been normed, thus providing comparative data between HA and non-HA children (Sprague, Christensen, & Werry, 1974). A shortened version of this scale, the Conner's Abbreviated Teacher Rating Scale (see Figure 6-1), which correlates highly with the longer version (Werry, Sprague & Cohen, 1975), takes only a few minutes to complete. A minimal score of 15, two standard deviations above the mean, serves as a good cut-off point in screening for children who are possibly HA. Only 2.5% of the elementary school children for whom the scale was normed would get a score of 15 or higher.

Of these same 33 HA children in whose referral the teachers had participated, teachers were asked if they had knowledge of other school staff members who were involved in the referral process. They reported that at least one school staff member had recommended consultation with a physician for 18 (59%) of the children and suggested medication might be beneficial for 19 (56%) of the children. Data were not collected about how these recommendations were made, e.g., through a staffing procedure or an appointed school staff member. Again, the justification for suggesting drug treatment without having the results of a medical diagnosis and without either the participation of the physician in the staffing or physician recommendations to family and school is truly questionable.

Teacher Participation in the Evaluation of Drug Treatment

The teacher can play a valuable role in monitoring the effects of drug treatment, including dosage adjustment, follow-up, and drug-free periods (Sprague & Gadow, 1976). Studies conducted at the Institute for Child Behavior and Development have repeatedly demonstrated that teachers are effective evaluators of stimulant drug treatment (Sleator and Von Neumann, 1974; Sleator & Sprague, in press; Sprague & Sleator, 1973). In these studies, teachers were blind to treatment manipulations, i.e., they were not told if the child was receiving placebo (a sugar pill) or medication, or if the

Table 6-5

People with Whom Teacher Interacted in the Diagnostic Phase of the Drug Regimen for Hyperactivity[a]

Interaction[b]	Hyperactive		Hyperactive-Convulsive	
	F	%	F	%
Suggesting child placed on medication	(children=10)		(children=1)	
Parent	5	50.0	1	100.0
School nurse	4	40.0	0	0.0
School staff member	1	10.0	0	0.0
Doctor	1	10.0	0	0.0
Suggesting doctor consulted	(children=14)		(children=1)	
Parent	13	92.9	0	0.0
School nurse	1	7.1	0	0.0
School staff member	0	0.0	1	100.0
Doctor	0	0.0	0	0.0
Saying child was hyperactive	(children=11)		(children=2)	
Parent	9	81.8	2	100.0
School nurse	1	9.1	0	0.0
School staff member	3	27.3	1	50.0
Doctor	0	0.0	1	50.0
Evaluating child's behavior	(children=15)		(children=2)	
Parent	10	66.7	1	50.0
School nurse	0	0.0	0	0.0
School staff member	4	26.7	1	50.0
Doctor	7	46.7	1	50.0
Evaluating child's behavior on a specific rating scale	(children=1)		(children=1)	
Parent	0	0.0	0	0.0
School nurse	0	0.0	0	0.0
School staff member	0	0.0	0	0.0
Doctor	1	100.0	1	100.0

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[a] Tabulated for those teachers who indicated interactions in Table 6-4. Missing data can be calculated by comparing the number of children in Table 6-5 to affirmative responses in Table 6-4.

[b] Teachers were permitted multiple responses.

CONNERS' ABBREVIATED TEACHER RATING SCALE

CHILD'S NAME ____________________

CODE NUMBER ________

STUDY NUMBER ________

TEACHER'S OBSERVATIONS

Information obtained ____________________ **by** ____________________

month day year

Observation	Degree of Activity			
	Not at all	Just a little	Pretty much	Very much
1. Restless and overactive				
2. Excitable, impulsive				
3. Disturbs other children				
4. Fails to finish things he starts - short attention span				
5. Constantly fidgeting				
6. Inattentive, easily distracted				
7. Demands must be met immediately - easily frustrated				
8. Cries easily and often				
9. Mood changes quickly and drastically				
10. Temper outbursts, explosive and unpredictable behavior				

OTHER OBSERVATIONS OF TEACHER

Fig. 6-1. Conners' Abbreviated Teacher Rating Scale.

child was on medication, they were not informed to changes in dosage. Using the Conners' Abbreviated Teacher Rating Scale, teachers could easily distinguish between placebo and drug and were also remarkably sensitive to subtle changes in dosage. As part of the entire treatment regimen, teachers complete the Conners' scale on a monthly basis, including drug-free periods and placebo trials which are scheduled for most children on a yearly basis.

ECSE teachers report involvement in the evaluation of medication for 69 of the 114 HA children (see Tables 6-6 and 6-7). Although it is encouraging to see this much participation, teacher evaluations were not reported for 39% of the children. Of those who did participate, all said that they reported the effect of the medication on the child's behavior to someone, primarily parents. School staff members are also mentioned but it is noteworthy that for only 12 of these children (11% of the total sample) was this evaluation reported directly to the physician. (Data were not collected on the mode of interaction, e.g., letter, telephone, or conference.) Although some teachers may be reluctant to speak directly with the physician preferring the school nurse or another staff member, many teachers were quite concerned about the possible distortion of information, intentional or not, resulting from the passing of information through the parent to the physician. In this regard a teacher remarked: "Few physicians ask for observations of the child in the classroom and therefore hear only the parents' opinion of how medication affects the child. When physicians do send reports to teachers the information is too technical." It was impossible to determine the number of children who had physician-directed changes in dosage, but at least 29% were placed on drug treatment during the school year. Dosage manipulations are encountered not only during the onset of treatment, but also during treatment, e.g., to manage side effects, adjust for a tolerance to the therapeutic response, for changes in body weight, etc. Teachers evaluated the effect of different dosage levels for 35 of the children, with the reports being made primarily to parents. As with the diagnostic phase, for only a few children were these evaluations made with a standardized instrument. One must infer that many of these reports are anecdotal, with little regard for a systematic analysis of target behaviors or therapeutic objectives. Dosage changes were suggested for 32 of the HA children, again primarily to parents. One teacher said, "[I] had to recommend decreasing dosage as he was becoming too hypoactive."

There may be other changes in the drug regimen aside from dosage manipulation. It was determined from parent interviews, for example, that 23% of the children had a change in the type of medication during the school year. Other opportunities for drug evaluation occur when the number of different drugs is reduced, dosage is decreased, or the child is taken off medication for a short time to assess therapeutic response and the continued need for treatment. Of all 114 HA children, teachers reported that 34 received a drug-free period during the school year. This may be a conservative estimate because some parents may have scheduled a break, either on their own or their physician's initiative, during a weekend or holiday, or, if during school, did not report it to the teacher. In such cases, it can be assumed that the school was excluded from participating in the evaluation of treatment. Breaks in medication not only provide an opportunity to assess therapeutic need and monitor progress through behavioral intervention programs, but, for caretakers who have not seen the child off medication, such breaks afford a chance to establish a behavioral treatment program. As an example of one such situation, a teacher commented: "The mother seems to use the medication as a crutch. When I suggested that the child's medication be reduced [child appeared to be in a 'zombie' state], she was very skeptical about speaking with the doctor. Later, she was pleased with the results but still reluctant to give him a complete drug holiday for a period of two weeks to give everyone a chance to observe [him]."

Teacher perception of therapeutic response for both children on and off drug treatment when surveyed is presented in Table 6-8. Drug treatment was effective in reducing HA for 61% of the children and improved attention span for 57%. These values are lower than those reported in most

Table 6-6

Teacher Participation in the Evaluation of the Effectiveness of Drug Therapy for Hyperactivity[a]

Interaction	Hyperactive (children=69)[b]		Hyperactive-Convulsive (children=11)	
	F	%	F	%
Did you suggest that the dosage be changed?				
Yes	32	46.4	3	27.3
No	37	53.6	8	72.7
Did you report the effect the medication had on the child's behavior?				
Yes	69	100.0	11	100.0
No	0	0.0	0	0.0
Did you report the effect of different dosages on the child's behavior?				
Yes	35	53.8	5	45.5
No	30	46.2	6	54.5
Did you report side effects of the medication?				
Yes	45	65.2	9	81.8
No	24	34.8	2	18.2
Did you evaluate dosage effects on a rating scale?				
Yes	5	7.2	3	27.3
No	64	92.8	8	72.7

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[a] Calculations based on teachers that indicated they had evaluated the effect of medication on the child's behavior.

[b] Smaller n's indicate missing data.

Table 6-7

People with Whom Teacher Interacted Evaluating the Effectivenes of Drug Therapy for Hyperactivity[a]

Interaction[b]	Hyperactive		Hyperactive-Convulsive	
	F	%	F	%
Suggesting dosage be changed	(children=29)		(children=3)	
Parent	24	82.8	3	100.0
School nurse	2	6.9	0	0.0
School staff member	3	10.3	0	0.0
Doctor	6	20.7	0	0.0
Reporting the effect of the medication	(children=53)		(children=10)	
Parent	40	75.5	6	60.0
School nurse	6	11.3	1	10.0
School staff member	8	15.1	0	0.0
Doctor	12	22.6	5	50.0
Reporting the effect of different dosage levels	(children=29)		(children=4)	
Parent	23	79.3	3	75.0
School nurse	3	10.3	0	0.0
School staff member	6	20.7	0	0.0
Doctor	5	17.2	2	50.0
Report side effects of the medication	(children=34)		(children=8)	
Parent	26	76.5	5	62.5
School nurse	4	11.8	0	0.0
School staff member	5	14.7	0	0.0
Doctor	4	11.8	4	50.0
Evaluate different dosages on a rating scale	(children=5)		(children=2)	
Parent	2	40.0	1	50.0
School nurse	0	0.0	0	0.0
School staff member	1	20.0	0	0.0
Doctor	3	60.0	2	100.0

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[a] Tabulated for those teachers who indicated interactions in Table 6-6. Missing data can be calculated by comparing the number of children in Table 6-7 to affirmative responses in Table 6-6.

[b] Teachers were permitted multiple responses.

studies of short term stimulant drug treatment (Sleator & Sprague, in press), but these children are not only younger than those in most investigations but many have disorders concomitant with HA. The response to drug treatment may be dramatic, as the following illustrates: "[I] have not seen him off [Ritalin] but mother reports extreme hyperactivity. He is impulsive but not excessively so. We saw marked improvement on Peabody [Picture Vocabulary Test]—one given at CA 4.0 resulted in MA 2.11 (no medication), and CA 4.10 resulted in MA 5.11 (on medication seven months)." CA and MA refer to chronological age and mental age respectively. When asked about the appropriateness of the dosage, 18 (20%) of the 89 children on medication were perceived to be at the wrong dosage of medication. Teachers said seven should be off medication, five should have a higher dosage, and six a lower dosage. Almost half were uncertain if there should be any change in the amount of medication. This uncertainty is due, in part, to the fact that 37% of the children had never been observed off medication by the teacher. This not only contributes to uncertainty about therapeutic response but creates problems in establishing educational treatment objectives. To this end a teacher said: "When they enter the program, I would like to see them off drugs. Many times we are told of management problems, but never 'really' see the 'real' problems." Of the 21 children off medication, only eight teachers agreed that drug treatment should have been terminated. The remainder either wanted a dosage change, same dosage, or were uncertain.

Perhaps one of the most difficult questions for those involved with drug treatment concerns the child who responds to treatment, but because of side effects, apprehension about long term effects, strong feelings against the use of medication, etc., a decision must be made whether or not to continue treatment. For example, one teacher said: "I am concerned about the side effects and if medication dosage is right. [Teacher reported a number of side effects.] Yet I can't see how she could function in a regular classroom without medical help." It is quite obvious that cost-benefit questions open the door to the possibility of considerable conflict among parents, teachers, and physicians about the proper course of action. The situational nature of the disorder (Langhorne, Loney, Paternite, & Becholdt, 1976) may make matters even worse. Although the demands of the school setting may be much more demonstrative of the effect of stimulant drugs on behavior than the home, the converse is also possible. A skilled special education teacher may find medication unnecessary while the parents are desperately hanging on. One teacher said: "The child clearly does not need medication in the classroom. The mother seems to be medicating his curiosity for learning." The way in which such conflicts are resolved may have a considerable impact on the willingness to communicate and share information.

Teachers reported side effects of drug treatment for 40% of the HA children. Many of these effects were alarming to teachers as well as incompatible with teaching objectives: "Pediatrician said only problem was hyperactive behavior and would not refer parent or send records to psychiatrist specializing in emotional problems in young children, even upon parents' request. Medication causes child to withdraw and not speak for one hour following administration. Child is insecure and follows teacher on days with medication." When asked if they had been told what the side effects might be or what to look for, teachers were informed of these reactions for only 28 children. (For six of these children the teacher said no one told her what the side effects were but that she already knew what to look for.) As would be anticipated, the most frequent source of information was the parent. In only four cases was the teacher told of the side effects directly by the child's doctor. Considering the tremendous demands upon the teacher's time to teach, staff, evaluate student progress, plan lessons, and work with parents, the search for information is an added burden. One teacher commented: "In my two years of teaching early childhood education classes I have had five students on medication. Very little information was given to me about the side effects, etc. Most I gained through my own questions and research."

Several recent studies have clearly indicated that teachers can play an important therapeutic role with HA children by using behavior management techniques (Ayllon, Layman, & Kandel, 1975; O'Leary, Pelham, Rosenbaum, & Price, 1976; Shafto & Sulzbacher, 1977). A number of studies have also clearly demonstrated that parents can be effective change agents for their child's behavior problems (Berkowitz & Graziano, 1972; Johnson & Katz, 1973; O'Dell, 1974; Reisinger, Ora, & Frangia, 1976). A number of ECSE programs emphasize the involvement of parents in the ameliorative process (Shearer & Shearer, 1977), and some have used the teacher as a parent trainer with the parent serving as the primary change agent for the child (Shearer & Shearer, 1972). Parent involvement is an integral part of ECSE programs in Illinois (Crain, 1974), and teachers said they had worked with the parents of 77% of the HA children on acquiring behavior management skills. No attempt was made to inquire further into what was taught to the parents, how it was taught, or how successful these efforts were.

Because many HA children receive medication during the day (see Chapter 4), drugs may have to be administered at school. In fact, 21% of the preschool HA children were given medication in school, and in almost all cases, the teacher administered the medicine to the child. The administration of drugs at school has generated a number of concerns about liability, storage of medicine, and possible errors. In regard to errors, one teacher described a situation in which the child received medication both in the ECSE program and at a day care center. The teacher said the child sometimes got a double dose until the schedules were coordinated. Recent court orders involving residential facilities for the mentally retarded have been quite explicit about procedures for administering, recording, and storing psychotropic drugs for residents (*New York State ARC v. Rockefeller*, 1975; *Wyatt v. Aderholt*, 1974).

A common complaint of teachers is that children frequently do not receive medicine the way the physician suggested, i.e., parents often forget to give the medicine, adjust dosage on their own, or are simply irregular in the administration of the medicine. Of a parent who admitted giving medication irregularly a teacher said, "Mother did not clearly understand the proper usage of the medication, and the child consequently received it inconsistently." Interestingly, when teachers were asked if they thought the child received medication regularly, only 12% said no but 15% were uncertain. Noncompliance with physician instructions is a major problem for physicians as well as teachers. This is particularly true with short-acting drugs, e.g., Ritalin, where a missed dose can produce considerable variation in a child's behavior. Also, adequate follow-up may be impossible: "Mother gives what she thinks is best instead of following doctor's prescription. This was reported to doctor . . . Parent's instability hinders proper monitoring of the drug."

Teacher Participation in Termination of Drug Treatment

Although some data are available from other surveys about the participation of teachers in the evaluation of drug treatment, there is little information about teacher role in the termination of drug treatment and none about the post-drug period (Sprague & Gadow, 1976). One would think that the termination of a powerful treatment modality and the transition to other modes of development would generate considerable research interest. However, to date there have been very few studies that have attended to this issue (Stableford, Butz, Hasazi, Leitenberg & Peyser, 1976), and there is little understanding among educators about their role in this process. As stated previously, for only 11 of the 23 HA children whose drug regimens were terminated during the school year did the teacher actively participate. Interestingly, the teacher was the primary initiator (5 children) followed by the parent (3), physician (2), and for two the teacher was uncertain. A frequently voiced complaint of school personnel is that the child is taken off medication at the whim of the parent. One teacher said: "[the] mother took the child off medication at Christmas without checking me. I watched his hyperactive behavior (foot pounding, arm waving, distractibility) get worse until in April I recommended he be put back on medication [Ritalin]." Teachers were asked to observe eight of the children while treatment was terminated and report their observations to physicians (5), parents (4), and school staff members (2).

Many researchers, clinicians, and educators concerned with drug treatment and HA children have long stressed the importance of the participation of the school in the treatment effort (Conners, 1971a; 1973; Katz et al., 1975; Sleator & Sprague, in press; Sprague & Gadow, 1976; Sprague & Werry, 1974). Sadly, there is a striking disparity between these models for adequate care and the services provided to HA children and their families in everyday practice. These data clearly show that the teacher is frequently not a member of the treatment team, and, when involved, only conveys reactions and impressions via anecdotal reports to parents or other school staff members. There is little or no direct contact between the teacher and the physician for any aspect of the drug regimen. A teacher observed, "Poor communication between teachers and doctors all seems to come with parents as informants." It would be naive to expect these data to provide a picture of professional interaction for the well-being of the child. Walking into almost any school and engaging staff members in a conversation about drug treatment and children would corroborate these results. The importance of this matter is forcefully conveyed in this quote from Sleator and Sprague (in press):

> Remarkable sensitivity to drug effects on the part of the teacher has been replicated regularly in our laboratory. No other clinical measure even approaches this sensitivity and, in fact, we have found parents on the average (although some parents are very sensitive), unable to distinguish even between on-drug and placebo periods. Teacher sensitivity, so clearly demonstrated by dose manipulation, indicates why we strongly recommend that monitoring of drug effects must include reports from the teacher if the physician hopes to effectively treat school children with learning and/or behavior disorders. He must be in active communication with the child's teacher. The physician would not consider treating anemia, for example, without repeated laboratory tests. For the child with learning problems the teacher is the physician's clinical laboratory, and yet most doctors are treating such children without essential feedback that will reveal efficacy of treatment. In our experience, most teachers are eager to share information with the doctor. If a change is to be effected, the medical profession must play an active role in setting up convenient communication channels between the doctor and the school.

This researcher takes issue only with the last statement. Constructive changes in the delivery of educational services to HA children both on and off drug treatment will and must come from educators. Educators also must bear much of the responsibility for seeking solutions to the problems they encounter as teachers with children receiving drug treatment. It is unrealistic to expect physicians who do not have the time or training to monitor the child's therapeutic progress, and frequently even to monitor the course of the medication, to educate teachers about drug treatment or set up channels of communication. This is not to imply that teachers should preempt a medical role, but simply to identify ways of providing a better delivery of services and initiating procedures to achieve this end. This point is discussed in greater detail in Chapter 7.

CONVULSIVE DISORDERS

As in the treatment of HA, teachers can play a valuable role in the management of CD (Livingston, 1972). Teachers may be the first to notice the seizure, particularly nonconvulsive types such as petit mal and psychomotor, and therefore can suggest to either school staff members or the parent that a physician should be consulted. Because the physician typically does not actually see the seizure, the teacher may assist in the diagnosis by providing the physician with a description of the overt features. If the diagnosis confirms the existence of a CD and drug treatment is initiated, the teacher can again facilitate medical management by reporting side effects, particularly those that impair school performance, as well as reporting the frequency of seizures at school. Participation in dosage adjustment is not limited to the onset of treatment but may occur in several situations throughout the duration of treatment. For example, as the child grows, with resulting changes in body weight, the dosage may have to be increased or, if the termination of treatment is being considered, the teacher can report the occurrence of seizures as dosage is gradually reduced. Reporting seizures at school for children whose convulsions were previously controlled by medication is also helpful for the physician in identifying children with a degenerative neurological disorder, parent irresponsibility in giving medication, or inadequate serum level as a function of body changes. If the child has seizures at school, particularly grand mal, the teacher is, of course, directly involved in the clinical manifestations of the disorder, which may be quite challenging for the uninitiated. Studies are now being conducted with teachers in which operant conditioning techniques are used to actually control the frequency of seizures (Balaschak, 1976; Zlutnick, Mayville, & Moffat, 1975). There are many situations in the management of CD in which the teacher can play a role, including monitoring the effects of drug treatment, management seizures at school, and facilitating social-emotional development.

Teacher Participation in the Anticonvulsant Drug Regimen

A description of whether or not teachers were provided with basic information about the 101 CD children is presented in Table 6-9. For 69 of the children the teacher knew what type of seizure(s) the child had, but, when asked to identify the specific type, teachers could report seizure types for only 60. For approximately half of the children teachers were told what the seizure would look like and how to manage a seizure at school if the child had one. Concerning seizure management, one teacher who had a child with uncontrolled grand mal seizures remarked: "I was lucky—had already taught several kids with grand mal seizures. If I *hadn't* I would have needed information on seizure management, what to expect, etc." The primary source of information for teachers was the child's parent, but a number also reported school staff members as sources, particularly the school nurse (see Table 6-10). For the child with uncontrolled convulsions, the parent can be very helpful in explaining to the teacher exactly how the family manages seizures at home. This may not only dispel some teacher anxiety, but also prevent inappropriate behaviors, e.g., trying to insert objects into the child's mouth during the course of the seizure.

For a number of the CD children, teachers assisted in the diagnosis by describing seizures, evaluating different dosage levels, and reporting side effects and the occurrence of seizures (see Table 6-11). Again, the interactions were primarily between the teacher and the parent, or, in some cases, between the teacher and a school staff member. For only a few children was there direct contact between physician and teacher (see Table 6-12). As in the treatment effort with HA children, the teacher is on the outside. Data were not collected in the parent interviews on the number of children who had changes in dosage during the school year, but teachers reported at least 15 of the CD children had a change in the type of drug prescribed. Such manipulations create situations in which teacher input could be valuable, particularly with respect to drug effects on classroom performance. Some adverse effects of drug treatment can make teaching quite difficult. One teacher described the following situation: "At staffing with his [child's] district, the school psychologist agreed with me that perhaps a different medication should be tried to control the convulsions since the medication [phenobarbital] now used makes the child so very active." HA and irritability are common side effects of phenobarbital and are typically not dose related.

Seizures

Teachers reported that 27% of the CD children had at least one seizure at school during the school year, and for 23%, teachers considered the uncontrolled seizures the primary handicapping condition. Seizure types which teachers were aware of are presented in Table 6-13. Obviously one should not infer that these data represent actual medical diagnoses, but rather, information available to teachers about the children in their classes.

Table 6-8

Teacher Evaluation of the Efficacy of Drug Therapy for Hyperactivity

Item	On Medication (children=91)[a]		Off Medication (children=23)[a]	
	F	%	F	%
Reduced the child's hyperactivity?				
Yes	62	69.0	6	28.6
No	14	15.5	11	52.4
Uncertain	14	15.5	4	19.0
Improved the child's attention to tasks?				
Yes	60	65.9	4	18.2
No	20	22.0	15	68.2
Uncertain	11	12.1	3	13.6
Improved the child's ability to follow directions?				
Yes	51	56.0	4	19.0
No	26	28.6	14	66.7
Uncertain	14	15.4	3	14.3
Improved interaction with classmates?				
Yes	38	42.2	4	19.0
No	32	35.6	14	66.7
Uncertain	20	22.2	3	14.3

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[a] Smaller n's indicate missing data.

Table 6-9

Teacher Information Concerning Seizures and Medication

Item	Convulsive (children=101)[a]		Convulsive-Hyperactive (children=19)	
	F	%	F	%
The kind of seizure the child has	(children=101)		(children=19)	
Yes	69	68.3	7	36.8
No	32	31.7	12	63.2
What the seizure would look like if the child had a seizure at school	(children=100)		(children=17)	
Yes	54	54.0	6	35.3
No	46	46.0	11	64.7
Side effects of the medication	(children=100)		(children=17)	
Yes	26	26.0	4	23.5
No	74	74.0	13	76.5
How to manage the child if he/she had a seizure at school	(children=100)		Children=17)	
Yes	49	49.0	6	35.3
No	51	51.0	11	64.7

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[a] Smaller n's indicate missing data.

Side Effects

Teachers observed side effects of drug treatment in 42 of the children, but for only 19 was the teacher told what to look for. Parents and school staff members were the chief sources of information. Interestingly, teachers said they actually reported side effects for only 20 of the children either to parents or school staff. Teachers were asked to compare their CD children on drug treatment to others in the class and evaluate them on five possible indices of toxicity (see Table 6-14). Because many of these children have handicapping conditions concomitant with CD, it would be inappropriate to infer that the characteristics of impaired cognitive performance are due to drug treatment. However, the fact that 36% of the CD children were described as more drowsy or sleepy than other children in the class lends credence to this suspicion for at least some of the children. One teacher said the side effects of the medication—drowsiness, lethargy, and "spaciness"—made "learning more difficult for this child." As discussed in Chapter 4, the effect of antiepileptic drugs on cognition and learning has been a long neglected area of inquiry.

It is interesting to note that of the 18 CD children teachers actually saw off drug treatment, they reported side effects in 13. Teachers were not asked if they saw the child off medication before drug treatment was started or in some other situation, e.g., when the parents forgot to give the drug, or when drug treatment was terminated. The onset of treatment is frequently accompanied by either self-limiting side effects or ones that can be managed with dosage adjustment; this could explain the frequency of side effect reports. But it is also plausible that many of the children have never been adequately observed off drug treatment to assess what their temperament or intellectual capabilities really are. An interesting anecdote about this dilemma was provided by a teacher about a child in her class who was receiving phenobarbital for seizures: "The child is manipulative. She frequently complains of drowsiness. This might be behavior which she has learned to use in manipulating situations, or it may be a side effect." Drowsiness is a common side effect of phenobarbital. Most people develop a tolerance for this side effect within two to three weeks after the onset of treatment. However, this side effect may persist and be an indicator of chronic toxicity.

Follow-Up Phase

Very little data were collected on monitoring drug treatment other than reporting the occurrence of seizures and side effects and managing seizures in the classroom. Only five of the CD children had been taken off medication during the school year, but no attempt was made to ascertain the teachers' participation in the procedure. One did say that "there was no contact between the doctor and the school regarding discontinuing the medication for seizures." Teachers were certain that at least five children (three of whom were still on medication) received a drug-free period during the school year. Three children were thought to receive medication on an irregular basis, and teachers were uncertain about the regularity of drug administration for 13 others. Not giving medication to a CD child, for whatever reason, may be a traumatic experience for child and teacher: "Just this morning he had a seizure. Upon calling the mother about this, she admitted she had run out of medication [Mysoline]." Although a number of HA children received medication at school, only nine of the CD children did. In all of these cases, the teacher gave the medicine to the child.

Teacher Preference for Interaction

The data on teacher involvement in drug treatment for specific children in their classes point out several problems. First, there is little or no direct contact between the teacher and the physician about the diagnosis of the disorder or evaluation of the effect of the drug on the child's behavior. Nor does the physician provide the teacher with information about the reason for which the drugs are prescribed, possible side effects, what the target behaviors are, or the nature of the

Table 6-10

From Whom Teachers Received Information Concerning Seizures and Medication

Item[b]	Convulsive F	Convulsive %	Convulsive-Hyperactive F	Convulsive-Hyperactive %
Type of seizure	(children=66)		(children=7)	
Parent	52	78.8	5	71.4
School nurse	6	9.1	1	14.3
School staff member	7	10.6	1	14.3
Doctor	5	7.6	0	0.0
What seizure would look like	(children=51)		(children=6)	
Parent	44	86.3	5	83.3
School nurse	3	5.9	1	16.7
School staff member	4	7.8	0	0.0
Doctor	1	2.0	0	0.0
Teacher already knew	1	2.0	0	0.0
Side effects of medication	(children=26)		(children=4)	
Parent	20	76.9	2	50.0
School nurse	7	26.9	1	25.0
School staff member	1	3.8	0	0.0
Doctor	2	7.7	1	25.0
Teacher already knew	1	3.8	0	0.0
Managing seizure at school	(children=49)		(children=6)	
Parent	32	65.3	3	50.0
School nurse	8	16.3	3	50.0
School staff member	8	16.3	0	0.0
Doctor	1	2.0	0	0.0
Teacher already knew	3	6.1	0	0.0

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[a] Tabulated for those teachers who indicated receiving information in Table 6-9. Missing data can be calculated by comparing the number of children in Table 6-10 to affirmative responses in Table 6-9.

[b] Teachers were permitted multiple responses.

Table 6-11

Teacher Participation in the Anticonvulsant Drug Regimen

Interaction	Convulsive (children=101)[a] F	Convulsive (children=101)[a] %	Convulsive-Hyperactive (children=19) F	Convulsive-Hyperactive (children=19) %
Report the occurrence of seizures	(children=101)		(children=19)	
Yes	39	38.6	8	42.1
No	62	61.4	11	57.9
Describe the seizure to assist in the diagnosis of the convulsive disorder	(children=101)		(children=19)	
Yes	19	18.8	3	15.8
No	82	81.2	16	84.2
Report side effects of the medication	(children=100)		(children=19)	
Yes	20	20.0	8	42.1
No	80	80.0	11	57.9
Report the effect of different dosage levels on the child's behavior	(children=99)		(children=19)	
Yes	16	16.2	5	26.3
No	83	83.8	14	73.7

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[a] Smaller n's indicate missing data.

Table 6-12

People with Whom Teacher Interacted in the Anticonvulsant Drug Regimen[a]

Interaction[b]	Convulsive		Convulsive-Hyperactive	
	F	%	F	%
Report the occurrence of seizures	(children=36)		(children=7)	
Parent	30	83.3	3	42.9
School nurse	6	16.7	2	28.6
School staff member	3	8.3	3	42.9
Doctor	2	5.6	2	28.6
Assist in the diagnosis by describing seizures	(children=16)		(children=3)	
Parent	9	56.3	1	33.3
School nurse	4	25.0	0	0.0
School staff member	2	12.5	0	0.0
Doctor	3	18.8	2	66.7
Report side effects of the medication	(children=19)		(children=7)	
Parent	16	84.2	2	28.6
School nurse	1	5.3	0	0.0
School staff member	2	10.5	0	0.0
Doctor	0	0.0	5	71.4
Report the effects of different dosage levels on the child's behavior	(children=15)		(children=4)	
Parent	13	86.6	2	50.0
School nurse	1	6.7	0	0.0
School staff member	1	6.7	0	0.0
Doctor	0	0.0	2	50.0

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[a] Tabulated for those teachers who indicated interactions in Table 6-11. Missing data can be calculated by comparing the number of children in Table 6-12 to affirmative responses in Table 6-11.

[b] Teachers were permitted multiple responses.

Table 6-13

Seizures

Seizure Type	Convulsive (children=101)		Convulsive-Hyperactive (children=19)	
	F	%	F	%
Grand mal	16	15.8	0	0.0
Petit mal	13	12.9	4	21.1
Grand mal and petit mal	18	17.8	4	21.1
Uncertain	31	30.7	4	21.1
Was never informed	10	9.9	3	15.7
Subclinical seizures	7	6.9	3	15.7
Other	6	6.0	1	5.3

Table 6-14

Comparison of Children Receiving Anticonvulsant Medication to Other Children in the Classroom Not Receiving Medication

Item	Convulsive (children=101)		Convulsive-Hyperactive (children=19)	
	F	%	F	%
Drowsy or sleepy	36	35.6	2	10.5
Blank stare	41	40.6	6	31.6
Spaced out, that is, appears to be off in another world	45	44.6	7	36.8
Poor coordination or balance	47	46.5	8	42.1
Confused	28	27.7	5	26.3
Total[a]	197		28	

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[a] Teachers were permitted multiple responses.

therapeutic response. Second, most of the teacher's input with respect to the child's response to treatment is reported to the parent and possibly relayed to the child's physician. The teacher's primary source of information about the use of medication and about type of drug prescribed is the parent. Third, changes in the regimen, including dosage changes, switching from one type of medication to another, and the termination of treatment, frequently go unreported to the child's teacher. Teachers also face a number of problems peculiar to the drugs themselves, such as side effects incompatible with teaching objectives. The lack of standardized procedures to assess the effect of treatment on the child's problems and to communicate these responses to treatment poses real challenges to the teacher. It is clear that if a team effort is essential for adequate care, genuine concern should be expressed about the use of drug treatment with children in ECSE programs. Conners (1973) commented that, "the gap in communication between teacher, parent, and doctor are among commonest bases for mismanagement in these [HA] children" (p. 351).

In Phase One of the study, teachers were asked with whom they would prefer to interact in several situations involving school children and medication (see Table 6-15). The great majority of teachers would prefer to receive information about medication from the child's physician. Of those teachers who identified a single preference (a number made multiple responses), most would prefer to report evaluations of drug efficacy and suggest the possible termination of treatment to the physician. Teachers would prefer to make suggestions about the desirability of a medical consultation to the parent or a school staff member, and a third preferred to make suggestions about the possible benefits of drug treatment to the parent. There is an obvious disparity between these preferences for interaction with the physician and the data presented in this section.

Table 6-15

With Whom Teachers Prefer to Interact Concerning a Child and Medication

(Teachers = 207)[a]

Item	Child's Parent		Child's Doctor		School Staff Member		Multiple Response	
	F	%	F	%	F	%	F	%
Receiving information about possible side effects. (N=206)	8	3.9	182	88.4	11	5.3	5	2.4
Receiving information about the medication. (N=206)	14	6.8	164	79.6	23	11.2	5	2.4
Reporting the effects of different dosage levels on the child's classroom behavior. (N=204)	42	20.6	120	58.8	16	7.8	26	12.8
Suggesting the possible termination of medication. (N=205)	40	19.5	112	54.6	32	15.6	21	10.3
Suggesting that a child might benefit from medical diagnosis. (N=204)	97	47.5	36	17.6	61	29.9	10	5.0
Suggesting alternative therapeutic measures instead of medication. (N=205)	76	37.1	57	27.8	56	27.3	16	7.8
Suggesting that a child might benefit from medication. (N=198)	66	33.3	52	26.3	72	36.4	8	4.0

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[a] Smaller n's indicate missing data.

VII

DRUG TREATMENT: QUESTIONS, PROBLEMS, AND SUGGESTIONS

At the end of the *Early Childhood Medication Questionnaire* distributed in Phase One, teachers were asked to list general problems they had encountered with children receiving drug treatment and questions they had about medication. Teachers were also asked to list problems and questions that parents had about drug treatment. The number of teachers who listed either questions, problems, or both for the teacher items was 127 (61%). For the parent items, 125 (60%) of the teachers indicated problems or questions. In Phase Two, teachers could record in the medication questionnaires any problems they may have had with each child who received drug treatment during the school year. Together, these data described the very real problems encountered by school personnel in their interactions with the families and physicians of children on medication, and the questions that concern them about the use of drug treatment with children.

Teachers listed a total of 74 questions about the use of medication and 149 questions for the parents of children who received medication (see Table 7-1). Questions were sorted into six areas: drug effects (therapeutic response, dosage, side effects, long term effects, etc.); the role of the teacher in the drug regimen; other (non-drug) treatments for the disorder; choice of treatment, i.e., deciding if medication or some other form of therapy is appropriate; mechanics of drug treatment, e.g., how dosage is determined; and details about specific regimens. Although many of the questions, especially from the parents, probably pertain to specific children and experiences, a number are of a general nature. Questions that were obviously phrased about a specific child were placed in the last grouping.

Questions About Drug Treatment

Teacher questions were reported by 42 teachers, while 65 teachers reported parent questions. Teachers asked the most questions about drug effects, teacher role in drug treatment, and the actual mechanics of the drug regimen (diagnosis, dosage adjustment, and follow-up). Most of the questions about drug effects focused on side effects, impairment of learning, proper dosage, and the signs of over-medication.

As for the teacher's role in drug treatment, a number of interesting questions were posed about how to interact with parents and physicians, and whether or not the teacher should initiate inquiry into situations where she suspects mismanagement. For example, one teacher described the following situation: "One child has become very active when put on phenobarbital. The mother complained to the doctor but was told to continue the medication. What can a teacher do to help a mother find a better medication?" Another teacher even questioned the feasibility of a team approach: "It is difficult to disagree with a physician and be in a position to relate these feelings to him. Can a teacher disagree with a doctor?"

Certain aspects of drug treatment, particularly how drug, dosage, and termination of treatment are determined, were of some interest. Teachers also asked a number of questions about the relationship between behavior modification and drug treatment and under what circumstances the use of medication is appropriate. For example, one teacher asked, "Should behavior modification techniques and family counseling accompany medication or be tried before medication is given?" Central to many questions was an uncertainty about when medication is appropriate and what types of risks are acceptable. The following query is a good example of this dilemma: "Does the use of medication make the child that much less able to learn? Does it slow down the learning process? Or, if not on medication, then the seizures, hyperactivity, etc., would consequently slow down the learning process.

Which is better? Because it is very difficult, at times, to handle exceptionally hyperactive children, do we have a choice of medication or not?" The identification of these questions played an instrumental role in shaping the content of the teacher training course, "Drugs and Special Education," described in Appendix O.

Most of the parent questions were from three areas: drug effects, drug regimen, and details about a specific regimen. By far the most frequently (22) asked question about the drug was what the side effects were. Other frequently asked questions in this group were about proper dosage and signs of excessive dosage, drug dependency, and the effects of long-term treatment. A number of questions were asked about drug treatment, e.g., how dosage was determined, but the most common question (21) was how long the child would have to receive drug therapy. As for details about specific regimens, an alarming number of questions (24) had to do with what the therapeutic response was supposed to be, and seven asked why the drug was prescribed. Two other questions that were asked with some frequency were inquiries into alternatives to drug treatment and whether medication was appropriate for a particular child.

Presumably teachers were asked many of these questions, or, if stated rhetorically, they were the sounding board of parent uncertainty. Parent questions had a considerable impact upon the teachers, as evidenced in the discussion below on parent problems with medication. These parent inquiries indicate even more challenging questions about whose responsibility it is to educate parents about medication, and because this is an immediate and daily problem, what, if any, is the role of the school?

General Problems with Drug Treatment

The problems reportedly faced by teachers and parents about the use of medication with children were sorted into seven areas: communication, participation, information, choosing a treatment, incompetence, drug variables, and giving medication (see Table 7-2). Although these groups are obviously interrelated, placement was made using the following criteria. Problems grouped under communication deal with lack of interaction and are further subdivided into communication problems between teacher-physician, parent-physician, and parent-teacher-physician. If a specific bit of information was desired, then the problem was grouped under information, which was subdivided into situations where the teacher, parent, or physician was not informed about something. If specific people were mentioned, e.g., the physician did not tell the teacher about the side effects, problems were grouped separately under the appropriate interaction. Participation describes a specific input desired by one of the three key figures in drug treatment. (Due to the age of the children and developmental delays, the child's input is obviously more limited than for older children.) Choosing treatment concerns the appropriateness of drug treatment, desire for other types of intervention, reluctance to try medication, etc., and the conflicts which arise over differences in opinion about what should be done. Problems grouped under incompetence are teacher perceptions of what physicians and parents should or should not do. Under the drug regimen category are problems with the medication or the mechanics of drug treatment, including diagnosis, dosage adjustment, and follow-up. The last category, giving medication, is self-explanatory.

From the previous discussions it should come as no surprise that many teachers felt the lack of communication between teachers and physicians was a major problem. Similarly, many were disappointed that they were not able to participate in drug management. The following comment was typical of the desire to be involved, "Every year of my four years of teaching I've wanted to work with a doctor for at least one kid on medication." Specifically, five teachers said physicians do not inquire about the effect of the drug on the child's behavior and three stated that they were not involved with the physician in the diagnosis of the disorder. Some teachers attempted to participate but were ignored. "The doctor did not reply or respond to my letter describing his [the child's]

Table 7-1

Questions About Drug Treatment[a]

Cateogry	Teacher Questions (teachers = 42)		Parent Questions (teachers = 65)	
	F	%	F	%
Drug Effects	28	37.8	60	40.3
Role Behavior	13	17.6	0	0.0
Non Drug Treatments	8	10.8	9	6.0
Choice of Treatment	8	10.8	11	7.4
Drug Treatment	11	14.9	30	20.1
Details About Specific Regimens	6	8.1	39	26.2
Total	74	100.0	149	100.0

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[a] Teachers were permitted multiple responses.

Table 7-2

General Problems with Drug Treatment[a]

Problem Area	Teachers (teachers=101)		Parents (teachers=48)	
	F	%	F	%
Communication				
Teacher-Doctor	24	12.0	0	0.0
Parent-Doctor	5	2.5	2	3.2
Parent-Teacher-Doctor	3	1.5	0	0.0
Participation	16	8.0	2	3.2
Information				
Teacher is not informed	46	23.0	0	0.0
Parent is not informed	19	9.5	33	53.2
Doctor does not inform teacher	10	5.0	0	0.0
Parent does not inform teacher	8	4.0	0	0.0
Doctor does not inform parent	0	0.0	4	6.5
Choice of Treatment	15	7.5	14	22.6
Incompetence				
Parent	17	8.5	0	0.0
Doctor	17	8.5	0	0.0
Drug Regimen	19	9.5	5	8.1
Giving Medication	1	.5	2	3.2
Total	200	100.0	62	100.0

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[a] Teachers were permitted multiple responses.

behavior and my suggestions that other alternatives to his present medication be investigated." Interestingly, two teachers said the usefulness of parent participation was hindered by the fact that the parents had such poor observation skills and therefore could not accurately assess the efficacy of drug treatment.

Of the seven problem areas, the need for information was the most frequently cited problem with children who receive medication. For teachers, the two major problems are the need for more training about medication and its use with children (26), and more detailed information about the children in their classes, e.g., why the drug is prescribed, what the therapeutic response should be, side effects, etc. Concerning the need for information, when asked if she had any problems with medication one teacher remarked dryly, "None, other than not being informed of the medication, why it is given and what effects it has." Many teachers also felt parents were not adequately informed about medication and how it was supposed to be used. The most frequent complaint was that many parents had unrealistic expectations about what the drug could do in terms of therapeutic improvement. For example, one teacher stated: "They [parents] need to realize that drugs are not a magic cure-all. That they are just one approach to the problem. Medication is not a substitute for sensible, consistent child management." A number of teachers identified specific interactions between parent, teacher, and physician as problem areas. The most frequent was the physician's failure to inform teachers that medication was being prescribed. A few teachers stated that parents did not inform them about changes in the drug regimen, particularly termination of treatment, and, if parents did pass information along to the teacher, it was incorrect. Failure to inform the teacher of dosage changes was also reported: "Upon noticing child was excessively tired, crabby, and fell asleep in school I learned from parents that medication [Dilantin and phenobarbital] had been increased." The problems parents face from not being adequately informed about medication by the physician are discussed below.

Conflicts about the choice of treatment or its necessity generated a number of comments, the most frequent (8) being that the child should not be on medication. About the parents of these children, teachers made comments such as, "I think the mother needs tranquilizers more than child needs medication," "Child was placed on medication for the sake of the mother; she could not control her child's behavior at home," and "I am concerned that a doctor would prescribe the medication for the parent [to be administered to the child] in the first place." There were also comments about parent reluctance to try medication, failure to give treatment for a long enough trial period, and guilt and fears about the use of drug treatment. Media exposure to fad treatments for the management of HA causes problems for physicians (Silver, 1976) as well as parents who, "often get varied and opposing points of view regarding the use and amounts of medication for hyperactivity from the 'authorities' including M.D.'s resulting in insecurity and guilt in parents." One teacher said that parents sometimes "bootleg" their children's medicine. Although there is some evidence of this (Oettinger, 1971), it is believed this is not a frequent occurrence.

Second only to the need for information are problems of incompetence, at least as it is perceived by the teacher. Parent incompetence consisted of administering medication in an irregular or inconsistent manner (8), adjusting or changing dosage on their own initiative (5), and terminating drug treatment without consulting anyone (4). About this problem a teacher said: "Some of our parents who use medication a lot develop a peculiar confidence in their own abilities and often are irregular with dosage or increase or stop medication without doctor's orders. I think the seriousness of medications and their effects should be strongly reemphasized during medication therapy." Physician incompetence is perceived as being in three areas: not using adequate diagnostic procedures (7), poor monitoring and follow-up (5), and using drug treatment indiscriminately (3). Poor follow-up procedures by physicians can create a number of problems, including parent non-compliance: "The inaccessibility of doctors who prescribe drugs is a serious problem. Parents are too often left on their own to alter dosage or manage side effects because the doctor is too busy or simply unavailable when a need arises." Without corroborating support, the inference that teacher opinions about incompetence are accurate descriptions of the situations upon which they are based is inappropriate. However, these opinions are descriptive of teacher feelings about the ability of parents and physicians to competently manage children receiving medication.

Teachers also identified a number of problems which are the result of medication, including side effects incompatible with teaching objectives, wrong dosage, ineffective drugs, etc. The most frequent problem (5) was the fear that although drug treatment may suppress symptoms it may only mask the true cause of the behavior problems, thereby only postponing needed behavioral intervention. One teacher felt drug treatment was a "surface panacea for the child's more deeply root difficulties." In some cases the cost of symptom suppression may not warrant the use of drug treatment. About one child, a teacher said he "has emotional problems—severe acting out but is *not* hyperactive. Present dosage [Ritalin, then changed to Dilantin] had no observable effect on him. We are concerned that [the dosage required to] control tantrums will . . . put him in a daze."

When teachers were asked to identify the problems parents frequently encounter with drug treatment, they felt the need for more information about medication was by far the greatest problem. Most teachers simply said parents need to know more about the drug; several said special emphasis should be placed on why it is prescribed and the nature of the therapeutic response. About this problem a teacher commented: "I also think parents could benefit more from consultations on why the child is receiving medicine, when he should be reevaluated, possible side effects, what behaviors, etc. to look for, how to give the medication, and some follow through to assure it's being given as prescribed. I have seen it misused frequently in proportion to the numbers of children receiving it." Another problem area is the choice of treatment. Eight teachers reported parent guilt about the use of drugs and four about the amount of medication necessary for a satisfactory therapeutic response.

Two teachers said parents should have a more active role in the decision to use medication, fearing that school or physician recommendations may overwhelm them. One teacher described this situation as follows, "Parents are at the mercy of school staff and doctors who claim to know more."

Problems Encountered by Teachers with Specific Children

The above discussion focuses on teacher and parent problems in general and not necessarily on specific children treated with medication during the school year. Also, no distinction was made for the type of disorder, i.e., HA or CD. In order to describe problems with medication encountered during a single school year as well as explore the possibility of differences between HA and CD children, teachers were asked on the medication questionnaires in Phase Two to list any problems with drug therapy and the people involved. Teachers reported at least one problem related to drug management for 71 of the 114 HA children and for 34 of the 101 CD children (see Table 7-3). Significantly fewer problems were reported for the CD children.

Teachers report that the drug regimen, choice of treatment, and incompetence are the three biggest problem areas with HA children receiving drug treatment. The major problems reported under drug regimen are side effects incompatible with teaching objectives (23), drug treatment was not effective (5), behavior quite variable from day-to-day (5), other side effects (3), and proper dosage (5). There were a number of parent-teacher disagreements about the choice of treatment, with the primary one (15) being teacher opinion that the child should be off medication, or, if off drug treatment, that he should never have been put on medication in the first place. Teachers felt two children should be placed back on medication. Other conflicts centered on dosage and on trying a different and more effective drug. The main complaint in the area of incompetence was parent inconsistency in administering the medication. For CD children, teachers perceived the drug regimen

Table 7-3

Problems Teachers Encountered with Children Receiving Drug Treatment for Hyperactivity and Convulsive Disorders

Problem Areas	Hyperactivity (children=71)		Convulsive Disorders (children=34)	
	F	%	F	%
Communication	6	5.2	1	2.9
Participation	3	2.6	0	0.0
Information	8	7.0	8	22.8
Choice of Treatment	25	21.7	0	0.0
Incompetence	18	15.7	0	0.0
Drug Regimen	53	46.1	26	74.3
Giving Medication	2	1.7	9	0.0
Total[a]	115	100.0	35	100.0

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[a] Teachers were permitted multiple responses.

as the primary problem, specifically, side effects incompatible with teaching objectives (19) and treatment ineffectiveness (13), i.e., seizures weren't completely controlled.

The most striking contrast between the problems reported for HA and CD children and the use of medication is in the area of choice of treatment. This is not surprising for two reasons. First, no one would deny the importance of treating a child with uncontrolled seizures with medication. And second, not only is the management of the CD child more securely couched in the medical profession, but the teacher's interest in HA is intrinsically related to her profession. A child with attentional deficits and behavior problems severe enough for special education placement, particularly in early childhood, presents the teacher with a disorder which frequently responds to behavioral intervention to some degree. Although behavioral therapy may not be the sole treatment modality, it is clear that the special education teacher is deeply involved in the child's development. It should come as no surprise that she should have strong feelings about treatment efforts concomitant with her own.

Suggestions and Recommendations

The data collected in this study of drug treatment with children in ECSE programs point to at least five different problem areas: (1) the need for information about drug treatment, (2) communication between parent, teacher, and physician, (3) developing guidelines for the role of the school in drug treatment, (4) parent incompetence, and (5) physician incompetence. The last two problem areas pose some of the greatest challenges to the school. The following discussion describes some possible solutions to these problems.

The need for information poses problems for teachers on two levels: (1) getting accurate information about the medication being administered to specific children, and (2) training in the area of drug treatment. The first problem, as it pertains to parents, is primarily an educational one. It should be possible through parent conferences and group meetings to convince them that accurate medication information is quite important to the school. The school is moving toward solving some of its own problems when it takes action by instructing parents on exactly what facts are important, e.g., name of drug, reason it is prescribed, name of child's physician, any changes in medication, dosage, or schedule, etc., and *how* to supply this information to the school. Developing medication forms that can be easily completed and appointing a school staff member through which certain information should pass may also encourage reporting changes in drug treatment during the school year. This presupposes that there is a flow of information within the school. For example, if parents report changes in the child's drug treatment to the school nurse, it must be relayed to the teacher to be of any help to her. Creating the awareness that the school is interested and *why* may go a long way in solving some problems. If the accuracy of parent reports is a problem, perhaps the school could send a medication form to the physician with written permission from the parent requesting such information.

The solution to the second aspect of this problem, teacher education, must come from teacher training institutions. As discussed in Chapter 5, much has yet to be done alone these lines. A major obstacle to many colleges of education is finding staff who are competent in teaching in this area. In all probability, persons familar with pediatric psychopharmacology will come from disciplines other than education. Concern must then be given to shaping such instruction to the needs of the teacher. Inservice training has considerable potential for meeting the immediate educational needs of school personnel. Although the Council for Exceptional Children has made possible a two-day training institute called "Drug Therapy with Children" (Gadow & Sprague, 1976), such efforts must be made on a grand scale to meet the needs delineated by this investigation. Local physicians could be used in this effort through teacher institutes. This would not only familiarize school personnel with some of the doctors who prescribe the medication, but may also encourage the flow of information. Large scale dissemination activities could be directed at the state level via the same procedures that are used for training in other areas.

Related to the problem of teacher training is the development of training materials for teachers about drug treatment, including books and films. Many of the materials that are available are oriented to medical audiences and do not focus on the needs of the teacher, or, if developed for teachers, are not sophisticated enough for the level of involvement proposed in this study. This is particularly true for special education teachers who frequently encounter children receiving drug treatment. Assuming such materials were available, they would be an important addition to school reference libraries. Whatever procedures are adopted to increase the level of training about drug treatment with children, it is naive to think that doctors will, or should, bear the sole responsibility for educating school personnel in this regard.

The second problem area, communication between parent, physician, and teacher, may also be improved by adopting a staffing and referral procedure that actively involves the parent and, when possible, the child's physician. Such involvement would impress upon the parent the willingness of the school to work with the parent and the physician in every possible way for the benefit of the child. Such arrangements might be misused (Bruck, 1976), but certainly not to any greater degree than referrals or suggestions by individual school staff members. The child who is already receiving medication when enrolled presents some special challenges. The school could communicate to both parent *and* physician a willingness to help with the child's management. Using a standardized form, the school could communicate to both parents and physicians a desire to evaluate the effect of the medication and assess its impact and necessity from evaluations made during drug-free periods. As stated, inservice training sessions involving community physicians may encourage cooperation with the medical community; expressing a willingness to help may go a long way in achieving this end. There will be parents and physicians alike who refuse, for whatever reasons, to involve the school in the child's health care. These people will be perceived by teachers with the same frustration as parents and physicians who encounter opinionated and uncooperative teachers. The school, through staffing procedures, may suggest physicians who have been very cooperative in working with staff members. This could be very helpful to the parent, particularly to the parent of a handicapped child, who is searching for someone who is not only competent in managing childhood disorders but also willing to work with an exceptional child. Fears have been expressed that such procedures would yoke the disgruntled and disruptive children in our schools to the oppression of drug treatment through a medical-educational conspiracy. The legitimacy of this fear and the degree to which it is a problem is still awaiting evidence.

The third problem area has to do with the ambiguity of the teacher's role in drug treatment and the need for specific guidelines for the involvement of school personnel in drug treatment. In a national survey to find out which states, if any, had statutory law, case law, or state department of education guidelines for the use of stimulant drugs for HA and the school system, Appleman (Note 7) reported there were few states with any form of policy whatsoever. If teachers are acting inappropriately, e.g., recommending drug treatment, school policy should clearly state the limitations of teacher-involvement. It is important, however, that such guidelines do not become a series of "don'ts." They should, and must, include procedures which focus on the well-being of the *child*. The investigator (Gadow, Note 8) has developed a discussion guide for school personnel to help them set up a policy for their own school or administrative unit (see Appendix P). Whether such policies can be meaningfully implemented on the local level without state or federal leadership remains to be seen. Regardless, it is only a matter of time before court cases involving the public schools (Bruck, 1976) and the residential care of the mentally retarded, e.g. *New York State ARC v. Nelson Rockefeller* (1973), provide the impetus to explore this matter with the urgency it demands.

The remaining two problem areas concern incompetence; primarily, on the part of parents who do things they should not, and physicians who do not do what they should. Parent incompetence deals mainly with manipulating the dosage schedule, over-medicating the child, or making other changes in the regimen, e.g., terminating treatment on their own initiative. With drugs that affect behavior, such manipulations may have dramatic effects on the child's behavior in the classroom. Although compliance is traditionally thought of as something within the physician's domain, studies to increase compliance to short-term regimens have also involved pharmacists (Lima, Nazarian, Charney, & Lahti, 1976). Although one may be tempted to put such non-compliant behaviors which are clearly against physician recommendations under the rubric of child abuse, a note of caution is necessary. In view of the difficulty encountered in trying to help the *child* who is physically maligned by his parents, one may think twice about considering such a nebulous concept as the misuse of medication as an example of child abuse. What the role of the school should be in this matter is unclear. For example, should the school report suspected misuse to the child's physician?

Teachers describe the imcompetent physician as one who does not adequately inform parents about medication, fails to monitor drug treatment adequately, refuses to interact with the school, and prescribes drug treatment in a capricious manner. From the school's perspective, this is one of their greatest challenges. The responsibility for parent education about drug treatment belongs to the physician. A frustrated teacher commented: "Several [parents] *don't even know* specifically what the drugs do and keep asking us to explain it to them. We feel it's the Doctor's duty." Many teachers also agree attitudinally that medication is often prescribed without an adequate diagnosis. The following was recorded by a parent interviewer in Phase Three:

> I took him along with me to the doctor's office once when I took my older son for a check-up. [The older child was receiving Ritalin for hyperactivity.] The little one was curious about the doctor's office like a normal kid is, and he was running around a bit. I couldn't pay too much attention to him because I was paying attention to what the doctor was saying about my older son. When the little one went over to the water fountain to get a drink, the doctor said he was also hyperactive. I said I didn't think so, because he wasn't at all like his brother, and I live with the two of them 24 hours a day. But she insisted he was hyperactive, and prescribed Ritalin. I thought, well, she's a doctor

> and I'm not and maybe I'm dumb or something so I gave it to him. It made him so *tired*, and I didn't like that, but when I called her and told her she said keep giving it because he was hyperactive too. Finally both the teacher and the school nurse called me and said, what are you giving him. I told them and told they why and they said to stop it at once because it was making him *dopey in class*—sometimes he'd *fall asleep*. So I stopped it right away. The teacher and school nurse said the only thing wrong with him is that he's a little bit slow at learning and that's all.

Physicians who openly refuse to interact with the school in a meaningful way present special problems. If suggestions for a medical consultation are made as a result of a balanced staffing, the school could suggest several physicians who have been cooperative in letting school staff evaluate the child's response to treatment, provided there are adequate safeguards against pharmacological conspiracies. It is truly unfortunate that the physicians of the children who received drug treatment could not be interviewed. They could have provided some very interesting data on the problems encountered with parents and teachers. Although the obvious logistical problems encountered in a state-wide study would have to be overcome, physicians have traditionally been a difficult group to survey. However, without at least some data from a sample of the physicians of these BCSE children, projections about the degree of participation are purely speculative.

The data gathered about these children, their teachers and parents, make it clear that it is urgent for educators to inquire about the psychosocial aspects of drug treatment and to determine the treatment needs of children with chronic childhood disorders. The reason for our present ignorance and the need for a more holistic treatment approach is due, in part, to the way the medical model conceptualizes the origins of disease and treatment strategies. In an excellent essay on the need to develop a biopsychosocial approach to the treatment of illness, Engel (1977) refers to this situation as "medicine's crisis" which "stems from the logical inference that since 'disease' is defined in terms of somatic parameters, physicians need not be concerned with psychosocial issues which lie outside medicine's responsibility and authority" (p. 129). The results of this investigation bear witness to the very real problems created by such an approach to health care. One of the major problems identified by teachers was the need for parents to be better educated about the use of medication. About the importance of this matter Engel states, "the behavior of the physician and the relationship between patient and physician powerfully influence therapeutic outcome for better or for worse," and he adds that, "the physician's role is, and always has been, very much that of educator and psychotherapist" (p. 196). Because behavioral intervention is so important, the treatment of behavior and learning disorders presents tremendous challenges to the medical profession. Although the development of behavioral pediatrics has been heralded with much enthusiasm (Richmond, 1975), it remains to be seen how the treatment strategies of this specialized branch of medicine are implemented, and whether the physician will *have the time* to serve as a team member in a multidisciplinary approach, actually direct behavioral intervention strategies, and train parents, or, if it is not a judicious use of the physician's resources to actually administer treatment, to refer children and their families to the appropriate health care services.

Whether or not the medical profession will reorient itself is debatable and the challenge is formidable because "nothing will change unless or until those who control resources have the wisdom to venture off the beaten path of exclusive reliance on biomedicine as the only approach to health care" (Engel, 1977, p. 135). What is certain is that there are a number of pressing problems that cannot await reforms in the training of doctors. It is imperative that federal agencies which fund research on behavioral intervention support research on the psychosocial aspects of drug treatment, delivery of services to children receiving medication, and models for interaction between school, family, and the medical community. The paucity of research studies on these topics in the medical literature bears witness to the degree of importance that the agencies that fund psychotropic and antiepileptic drug research attach to this issue.

APPENDIX A

CONTACT LETTER TO SCHOOL OFFICIALS

University of Illinois at Urbana-Champaign

CHILDREN'S RESEARCH CENTER

51 Gerty Drive
Champaign, Illinois 61820
(217) 333-4123

March 10, 1975

Dear

In response to our telephone conversation, I am enclosing a brief description of the early childhood medication survey. If you have any questions concerning the project, please contact me at the Children's Research Center.

We hope that your special education administrative unit decides to participate in this study. There exists a definite need for this research, and participating teachers can directly benefit from the experience.

If you decide to participate, please mail us the names of your early childhood special education teachers, their school addresses, and school phone numbers.

Thank you for considering this proposal.

Sincerely,

Kenneth Gadow

Kenneth Gadow
Survey Project Director

KG/pr
Enclosure

APPENDIX B

PROJECT PROPOSAL

The purpose of this survey is to ascertain the use of certain medications with young children. These medications include stimulants, antidepressants, tranquilizers, barbiturates, and anticonvulsants. Many articles have been written in popular magazines discussing the use of these medicines with children (some which have been sensationalistic); however, the scientific community has of yet to accurately assess the extent of their use. We are interested not only in the medications, but also the reason for which they were prescribed and the interaction of the teacher with the parent and the child's physician.

HOW MEANINGFUL IS THIS RESEARCH?

We believe the use of the medications with preschool-aged children in special education classrooms has significance for teacher education, inservice training, and the delivery of services. Children are being placed in these early intervention programs on the assumption that when a child is young he is most responsive to the amelioration of learning problems. We know also, that these medications my have powerful effects on the child's performance in the classroom. These effects may be either positive or negative. For a child receiving medication at this early age, the effect of the medication on his behavior may have profound implications for his later development. In an earlier survey by our staff, 13% of the children in these early childhood special education programs were reported to be receiving these medicines. Because federal funds are being made available, we have been able to develop more effective surveying methods permitting a greater depth in analysis than the previous year's efforts.

HOW WILL THE SURVEY BE CARRIED OUT?

The early childhood special education teacher will receive a questionnaire in the mail. She will be asked to identify the children receiving medication by age and sex only. The identity of the child will not be revealed. The teacher will identify the medicine the child is taking from a list of medications on the questionnaire. She will then return the questionnaire to us if she decides to participate. For each child receiving medication, the teacher will receive a follow-up mini-questionnaire and a parental approval form. The teacher will fill out the follow-up questionnaire and mail the parental approval form to the parent. As with the child, the parents are never identified unless they agree to participate by returning the approval letter. The letter clearly states that they are under no obligation to participate, can drop from the study at any time, and what we would do if they decided to become a part of the survey.

WHAT IS THE PARENTS' ROLE IN THE SURVEY?

The parent will receive color plates of the medications relevant to our study through a mail questionnaire. The medicines are pictured in the Children's Medication Chart in life-size and color. They will simply be asked to identify the medication the child is receiving. The parent will also be asked to participate in a short telephone interview to assist in the medication identification. It will be explained that this information will be used to train teachers concerning medication and their use.

HOW WILL TEACHERS DIRECTLY BENEFIT FROM THIS EXPERIENCE?

We intend for this research project to be not only a data collection activity, but also an educational experience for the teachers that decide to participate. Each teacher, if they so choose, will receive the Children's Medication Chart, the reasons for which the medicines were prescribed as reported in the survey results, and a complete bibliography of references on these medications, how they are used, the disorders for which they are prescribed, and how the teacher can help both the physician and the parent of a child receiving medication.

All research that is funded by the Department of Health, Education and Welfare that involves human subjects must be approved by a Human Subjects Review Committee. This project has been approved by such a committee. There is a definite need for this research, and the results will be of national interest.

APPENDIX C
COVER LETTER

University of Illinois
Children's Research Center
51 Gerty Drive
Champaign, Illinois 61820
(217) 333-4123

April 10, 1975

The purpose of this survey is to determine the prevalence of medication usage with young handicapped children in special education classrooms and the reasons for which they are being prescribed. The medicines being studied are stimulants, tranquilizers, antidepressants, barbiturates, and anticonvulsants. Many of the medicines are pictured in the *Children's Medication Chart* which is enclosed with this letter. I am interested in finding out which of these medicines the children you teach have received at some time during the school year. This includes both medicines received at home and at school. You may have participated in a similar study last year. Because federal funds are being made available through a grant from the Bureau of Education for the Handicapped, more effective surveying methods have been developed permitting a greater depth in analysis than the previous year's efforts.

Almost every special education administrative unit in the state of Illinois is participating in this survey. I may not have had a chance to talk with you personally concerning the project, however your administrative unit was contacted by telephone and asked to participate in the study. Because administrative approval was granted, I am sending this questionnaire to you.

HOW MEANINGFUL IS THIS RESEARCH?

Although you may not have children this year who received medication, over 70% of the teachers surveyed last year reported experience with children and medicine, and thirteen percent of the children were reported to have received at least one medication. The use of medications with preschool-aged children in special education classrooms has significance for teacher education, inservice training, and the delivery of services. Children are being placed in early intervention programs on the assumption that when a child is young he is most responsive to the amelioration of learning problems. It is also known that these medications may have significant effects on the child's performance in the classroom, either positive or negative. Medication, therefore, may have profound implications for later development.

HOW WILL THE SURVEY BE CARRIED OUT?

This survey consists of three phases. The first phase is the *Early Childhood Medication Questionnaire*. It is enclosed with this letter. If you have not had children who received medication at some time during the school year, your participation ends after completing this general questionnaire.

After the *Early Childhood Medication Questionnaire* is returned, the second phase of the study begins. If you have children who received medication, you will receive a follow-up mini-questionnaire for each child you report to have received medication and a parent approval letter which is discussed below. Through the mini-questionnaire you, as a teacher, will be able to provide a very valuable perspective on the child and medication. After you have mailed the parental permission letter and have completed the mini-questionnaire, the second phase of the study is over. This ends your involvement as a teacher.

The third phase of the study involves the parents of children reported to have received medication. It is very important to involve the parents in the study so they can assist in the identification of the medication and supply information regarding its use. The approval letter sent to the parents will describe the study and explain that they are under no obligation to participate. Because you will mail the letter, if you feel a parent should not be sent an approval letter, they obviously will not be asked to participate. Also, the name of the parents and their address will remain completely unknown to us unless they decide to participate by returning the approval letter. They will receive the *Children's Medication Chart* in the mail and will simply match their child's medication to the picture in the chart. Later, a telephone interviewer from the Survey Research Laboratory, a professional research institute, will talk with them about the medication.

Please note that these procedures may be modified depending upon the policy of your administrative unit. If such a procedural change was made for your program, I have enclosed special instructions.

HOW WILL I, AS A TEACHER, BENEFIT FROM THIS EXPERIENCE?

This research project is intended to be not only a data collection activity, but also an educational experience for the teachers who participate. You will receive: (1) the *Children's Medication Chart*, and upon request (2) the state-wide survey results on the medications, frequency of usage, and the reasons for which they are prescribed, and (3) a complete bibliography keyed to the questions teachers frequently ask concerning these medications. For example, if you are looking for books suitable for the parents of a hyperactive child, refer to the question, "What books can I recommend to parents of a hyperactive child?"

HOW DO I PROCEED?

Please fill out the *Early Childhood Medication Questionnaire* and return it to me. If you team teach, both you and your teaching partner are encouraged to participate in the study. A self-addressed stamped envelope is enclosed. In field testing the *Early Childhood Medication Questionnaire*, it took from 15 to 20 minutes to complete. Almost every item can be easily answered by circling a code number. If you have any questions at any time, please feel free to phone or write. Because I have offices in two different research facilities, you may have to leave a message when you call. Leave a number at which you can be reached, and I will glady return the call as soon as possible. If you are interested in the state-wide medication results and the bibliography, please fill out the coupon and the address label and return them with the questionnaire. Please do not discard the *Children's Medication Chart* for it will serve as a visual reference for the survey results. Because computer analysis of the data requires some time, the report will be sent out in the early fall. Please indicate a permanent address or one from which mail will be forwarded.

Please try to return the questionnaire by April 24, 1975.

Thank you for considering this project. I hope you see the results of this activity as being productive for not only other researchers, educators, staff members of federal agencies, and directors of teacher training programs, but also for yourself. Thank you again.

Sincerely,

Kenneth Gadow

Kenneth Gadow
Survey Project Director

KG/sh

APPENDIX D
PHASE ONE QUESTIONNAIRE

FOR OFFICE USE ONLY

ID ____________ 1-2-3

YR ____________ 4-5

MD ____________ 6

FP ____________ 7

CD ____________ 8-9

UNIVERSITY OF ILLINOIS
CHILDREN'S RESEARCH CENTER

Early Childhood Medication Questionnaire

(Circle one code number to answer each question unless otherwise instructed.)

Part I: Teaching Situation

1. Are you presently team teaching with another certified teacher?

Yes 1 15
No 2

2. Do you have children in your classroom(s) without learning problems or handicaps that serve as "models" for the other children?

Yes 1 16
No *(Skip to Q.4)* 2

3. How many "model" children do you teach?

a. males . . . . . . _______ 17-18   b. females . . . . . _______ 19-20

c. *Please exclude "model" children from consideration in the rest of the questionnaire.*

4. What is the number of children you are presently teaching with learning problems or handicaps? *(Include children who may have left your program but whom you taught for at least four months.)*

a. white males . . . _______ 21-22   e. white females . . _______ 29-30
b. black males . . . _______ 23-24   f. black females . . _______ 31-32
c. other males . . . _______ 25-26   g. other females . . _______ 33-34
d. total males . . . _______ 27-28   h. total females . . _______ 35-36

5. On a scale from 1 to 6, how would you generally describe the severity of the learning problems of the children you teach? *(Circle one)*

(Mild) 1 2 3 4 5 6 (Severe) 37

6. Is your program home-based, that is, do you teach primarily in the home and not in a school classroom?

Yes *(Skip to Q.8)* 1 38
No 2

7. How many classes per day do you teach? . . . . _______ 39

8. Is your program non-categorical?

Yes *(Skip to Q.10)* 1 40
No 2

9. What type of categorical program do you teach?

TMH 1 41
Multiply handicapped 2
Other *(Specify)* ________________ 3

10. If the above questions do not adequately describe your program (for example, you teach non-categorical in the morning and categorical in the afternoon), how would you describe your program?

____ 42-43

11. On a scale from 1 to 6, how would you generally describe the extent of developmental delay of the children you teach? *(Circle one)*

(Slightly delayed) 1 2 3 4 5 6 (Greatly delayed) 44

12. Did you teach early childhood special education last year? *(Exclude student teaching or experience as an aide.)*

Yes 1 45
No *(Skip to Q.16)* 2

13. Are you teaching in the same special education administrative unit that you were last year?

Yes 1 46
No 2

14. Are the children you are teaching this year and the children you taught last year generally similar in terms of developmental delay and severity of handicap?

Yes *(Skip to Q.16)* 1 47
No 2

15. How would you describe the children you are teaching this year? *(Circle one)*

More developmentally delayed 1 48
Less developmentally delayed 2
More severely handicapped 3
Less severely handicapped 4

16. For how many years have you taught? . . . . _______ 49-50

17. For how many years have you taught early childhood special education? *(Exclude experience as a student teacher or as an aide.)* . . . . _______ 51-52

18. What was the last degree you received? *(Circle one)*

Bachelor ..1 Master ..2 Advanced Certificate ..3 Doctorate ..4 53

19. What is your age in years? *(Circle one)*

21 to 30 ..1 31 to 40 ..2 41 to 50 ..3 51 or over ..4 54

2A

FOR OFFICE USE ONLY

ID________________$^{1-2-3}$

YR________________$^{4-5}$

MD________________^{6}

FP________________^{7}

CD________________^{8}

PART II: Medication

Directions:

(1) Please list below each child that has received medication at some time during the school year for learning, behavior, and convulsive disorders. This includes medication received both at home and at school.

(2) Report medication for the children you are presently teaching and children who may have left your program, but whom you taught for at least four months.

(3) If you are uncertain about a medicine because it is not listed below, please include the child and the medication in the survey.

(4) Below are the names of many medications used with young children:

1-Atarax
2-Benadryl
3-Celontin
4-Cylert
5-Deaner
6-Dexedrine
7-Diamox
8-Dilantin
9-Ekko
10-Elavil
11-Eskabarb
12-Gemonil
13-Librium
14-Luminal
15-Mebaral
16-Mebroin
17-Mellaril
18-Mesantoin
19-Mysoline
20-Paradione
21-Peganone
22-Phelantin
23-Phenobarbital
24-Phenurone
25-Ritalin
26-Tegtetol
27-Thorazine
28-Tofranil
29-Tridione
30-Valium
31-Vistaril
32-Zorantin
33-Other *(Please write in name of medication if not listed)*

(5) If none of the children you teach have received medication, mark the box below.

NO MEDICATION
(Skip to Q.29)

(6) For each child that received medication please indicate:

a. Sex
b. Age in years at last birthday
c. Race: Black, White, or Other
d. On medication now; Off medication now
e. Medication: Place number of medication on blank *(one medication per blank)*
f. Reason: Why the medication was prescribed

(7) When you finish, please go to Q.29.

****

Card 03

20. Child #1: Sex________^{15} Age________^{16} Race________^{17} On/Off________^{18}

Medications: ________ ________ ________ ________ ________$^{19-30}$

Reason ____$^{31-34}$

21. Child #2: Sex________^{35} Age________^{36} Race________^{37} On/Off________^{38}

Medications: ________ ________ ________ ________ ________$^{39-50}$

Reason ____$^{51-54}$

2B

22. Child #3: Sex________^{55} Age________^{56} Race________^{57} On/Off________^{58}

Medications: ________ ________ ________ ________ ________$^{59-70}$

Reason ____$^{71-74}$

Card 04

23. Child #4: Sex________^{15} Age________^{16} Race________^{17} On/Off________^{18}

Medications: ________ ________ ________ ________ ________$^{19-30}$

Reason ____$^{31-34}$

24. Child #5: Sex________^{35} Age________^{36} Race________^{37} On/Off________^{38}

Medications: ________ ________ ________ ________ ________$^{39-50}$

Reason ____$^{51-54}$

25. Child #6: Sex________^{55} Age________^{56} Race________^{57} On/Off________^{58}

Medications: ________ ________ ________ ________ ________$^{59-70}$

Reason ____$^{71-74}$

Card 05

26. Child #7: Sex________^{15} Age________^{16} Race________^{17} On/Off________^{18}

Medications: ________ ________ ________ ________ ________$^{19-30}$

Reason ____$^{31-34}$

27. Child #8: Sex________^{35} Age________^{36} Race________^{37} On/Off________^{38}

Medications: ________ ________ ________ ________ ________$^{39-50}$

Reason ____$^{51-54}$

28. Child #9: Sex________^{55} Age________^{56} Race________^{57} On/Off________^{58}

Medications: ________ ________ ________ ________ ________$^{59-70}$

Reason ____$^{71-74}$

Part III: Experience with Learning, Behavior and Convulsive Disorders

29. Did you teach any children this year that received any of the following therapies for hyperactivity? *(Circle all that apply)*

a. Nutrition (diet, special foods) . . .	1	55
b. Vitamins	2	
c. Operant conditioning techniques . . .	3	
d. Coffee	4	
e. Other *(Specify)* ________________	5	

30. How certain are you whether or not the children you teach are receiving medication? *(Circle one)*

Very certain ..1 Certain ..2 Uncertain ..3 Very uncertain ..4 56

31. How accurate, do you feel, is the medication information you have about your children? *(Circle one)*

Very accurate ..1 Accurate ..2 Inaccurate ..3 Very inaccurate ..4 57

32a. Have you had any experience, as a teacher, with children receiving medication for learning, behavior, or convulsive disorders?

Yes	1	58
No *(Skip to Q.34)*	2	

(If Yes)

	Yes	No	
b. Have you had children this year receiving medication for these disorders?	1	2	59
c. Have you or another school staff member given medication to any of the children you teach?	1	2	60
d. Have you ever taught children that were receiving medication for hyperactivity?	1	2	61
e. Have you ever taught children receiving medication for convulsive disorders?	1	2	62
f. Have you ever taught a child who has had a grand mal seizure in your classroom?	1	2	63
g. Have you ever taught a child who has had a petit mal seizure in your classroom?	1	2	64

33. With whom have you interacted concerning a child receiving medication in the following situations? *(Circle one)*

	Parent	Doctor	Both	None	
a. Decision to use the medication	1	2	3	4	65
b. Information about the medication	1	2	3	4	66
c. Side effects of the medication	1	2	3	4	67
d. Termination of the medication	1	2	3	4	68
e. Monitoring the effect of different dosage levels on the classroom behavior of the child	1	2	3	4	69
f. Reason the child was receiving medication . . .	1	2	3	4	70
g. Diagnosis of the disorder for which medication was prescribed	1	2	3	4	71

Part IV: Hyperactive Children

Card 02

Directions: Although you may not have had experience with some of these situations, please choose the answer that is closest to your attitude.

Strongly Agree (SA) Agree (A) Disagree (D) Strongly Disagree (SD) Does Not Apply (DNA)

34. You, as a teacher, should:	SA	A	D	SD	DNA	
a. Report the effects of different dosage levels to either parent or doctor	1	2	3	4	5	11
b. Be informed that a child is receiving medication and the reason for which it was prescribed	1	2	3	4	5	12
c. Participate in the decision to end medication	1	2	3	4	5	13
d. Suggest to parent or doctor "drug holidays" (periodic breaks in medication) to see if the child still requires medication	1	2	3	4	5	14
e. Suggest to parent the name of a particular medication that you believe may benefit the child	1	2	3	4	5	15
f. Assist in evaluation of effects of different trial dosages on the child's classroom behavior	1	2	3	4	5	16
g. Suggest a change in dosage to the parent or doctor if you think it is best for the child	1	2	3	4	5	17
h. Teach parents behavior management techniques to help them mangage their child . . .	1	2	3	4	5	18
i. Give information to child's doctor	1	2	3	4	5	19
j. Have direct contact (letter, telephone, meeting) with physician concerning diagnosis and decision to use medication	1	2	3	4	5	20

Strongly Agree (SA) Agree (A) Disagree (D) Strongly Disagree (SD) Does Not Apply (DNA)

You, as a teacher, should:	SA	A	D	SD	DNA	
k. Suggest to parents that their child should see a physician when you suspect that the child might benefit from medication	1	2	3	4	5	21
l. Give your opinion whether or not a child needs medication if the parent asks that question	1	2	3	4	5	22
m. Give the parent your evaluation of the medication on the child's behavior if the parent requests that information	1	2	3	4	5	23
n. Help parents find community resources to assist with their problems concerning their hyperactive child	1	2	3	4	5	24
o. Suggest to parents an alternative to medication therapy	1	2	3	4	5	25
p. Assist the child in developing self-management behaviors along with medication therapy	1	2	3	4	5	26
q. Report side effects of the medication to either the parent or doctor	1	2	3	4	5	27
r. Participate in staffings which recommend that a child see a doctor when medication may be appropriate	1	2	3	4	5	28
s. Suggest to parents that their child needs medication when you feel medication is appropriate	1	2	3	4	5	29
t. Be informed of possible side effects of the medication	1	2	3	4	5	30
u. Have direct contact with the doctor (letter, telephone, meeting) concerning the effects of different trial dosages on classroom behavior	1	2	3	4	5	31
v. Be informed of the specific medication the child is receiving	1	2	3	4	5	32

35. Who would you prefer to interact with concerning a child and medication in the following situations:

	Child's Parent	Child's Doctor	School Staff Member	
a. Receiving information about the medication	1	2	3	33
b. Suggesting that a child might benefit from medical diagnosis	1	2	3	34
c. Reporting the effects of different dosage levels on the child's classroom behavior	1	2	3	35
d. Suggesting that a child might benefit from medication	1	2	3	36
e. Receiving information about possible side effects	1	2	3	37
f. Suggesting alternative therapeutic measures instead of medication	1	2	3	38
g. Suggesting the possible termination of medication	1	2	3	39

Part V: Children with Convulsive Disorders

36. You, as a teacher, should:	SA	A	D	SD	DNA	
a. Report to the physician or parents the occurrence of seizures	1	2	3	4	5	40
b. Be informed of the reason for each drug if multiple drugs are prescribed	1	2	3	4	5	41
c. Be told what behaviors to expect if the child has a seizure	1	2	3	4	5	42
d. Notify the parent of a child you suspect of having a convulsive disorder	1	2	3	4	5	43
e. Report medication side effects that impair classroom performance	1	2	3	4	5	44
f. Assist in the diagnosis of convulsive disorders by describing seizures you see	1	2	3	4	5	45

Part VI: Medication - General

37. Physicians in our community tend to over-prescribe medication	1	2	3	4	5	46
38. Parents sometimes feel that their child should be on higher doses than I think is necessary	1	2	3	4	5	47

	SA	A	D	SD	DNA	
39. Hyperactive children that I encounter can usually be managed effectively with behavior management techniques without medication . . .	1	2	3	4	5	48
40. Poor communication between parent, physician and teacher is a major problem with children receiving medication	1	2	3	4	5	49
41. I really don't know when medication is the right thing to do for hyperactivity	1	2	3	4	5	50
42. All hyperactive children should be given a trial dosage of medication to see if it can help them	1	2	3	4	5	51
43. "Drug" is not a good word to use when referring to children's medication	1	2	3	4	5	52
44. Too many children are being placed on medication for hyperactivity	1	2	3	4	5	53

Part VII: Training and Knowledge

College (C)
Inservice (I): special training sessions arranged by your staff.
Staff (S): informal interactions with your school staff.
Personal (P): teaching experience, reading, t.v., etc.
Does Not Apply (DNA): if you do not have definite knowledge or specific training.

45. In which of the following areas have you had specific training or acquired definite knowledge? *(Circle all that apply)*	C	I	S	P	DNA	
a. Causes of hyperactivity	1	2	3	4	5	54
b. Grand mal seizures	1	2	3	4	5	55
c. How the teacher can assist the physician in the diagnosis of hyperactivity	1	2	3	4	5	56
d. Termination of medication for convulsive disorders	1	2	3	4	5	57
e. Thioridazine (Mellaril): Effects and use with children	1	2	3	4	5	58
f. Diphenylhydantoin (Dilantin): Effects and use with children	1	2	3	4	5	59
g. Febrile seizures	1	2	3	4	5	60
h. Working with parents of hyperactive child .	1	2	3	4	5	61

College (C) Inservice (I) Staff (S) Personal (P) Does Not Apply (DNA)

	C	I	S	P	DNA	
i. Assisting the doctor in the evaluation of the effects of different drug dosage levels on classroom behavior	1	2	3	4	5	62
j. Primidone (Mysoline): Effects and use with children	1	2	3	4	5	63
k. How to manage the classmates of a child who has a seizure in their presence	1	2	3	4	5	64
l. How to manage a child having a grand mal seizure in the classroom	1	2	3	4	5	65
m. Methylphenidate (Ritalin): Effects and use with children	1	2	3	4	5	66
n. Petit mal seizures	1	2	3	4	5	67
o. Social and emotional adjustment of the child with convulsive disorders	1	2	3	4	5	68
p. Local school district policy for giving medication at school	1	2	3	4	5	69
q. Behavior modification techniques and hyperactivity	1	2	3	4	5	70

Part IX: Problems and Questions *(Optional)*

46. What problems, comments, or questions do you have concerning the use of medication with the children you teach?

71-72

____

____

____

____

47. What problems or questions do you feel parents have concerning the use of medication with their child?

73-74

____

____

____

____

48. Thank you very much.

University of Illinois
Children's Research Center
51 Gerty Drive
Champaign, Illinois 61820
(217) 333-4123

May 9, 1975

By participating in this medication study, you have contributed in a very valuable way to a greater understanding of an aspect of teaching that has been neglected by researchers in education for many years. Your cooperation is deeply appreciated.

This letter explains the last phase of the early childhood medication survey that involves teachers. This phase has three parts: (1) mini-questionnaire, (2) parent permission letter, and (3) the permission letter log.

(1) Mini questionnaire:

The mini questionnaire was designed to get your input, as a teacher, concerning the child and medication. Enclosed is one mini-questionnaire for each child reported to have received medication. A description of the child, as it appeared in the *Early Childhood Medication Questionnaire*, is located at the top of each mini-questionnaire. Each child is assigned a number.

(2) Parent permission letter:

Parent involvement is very important. Parents can play a valuable role in the identification of the medicine the child is, or was, receiving, and providing information concerning its use. For each mini-questionnaire, there is a parent permission letter. Each permission letter has a number. Be sure the permission letter goes to the correct person by matching the number on the permission letter to the child's number and description on the mini-questionnaire. You will simply address and mail the letter.

This method of seeking permission may seem cumbersome. However, it guarantees the anonymity of the parents. Only you know their name and address. Parents can freely choose to identify themselves by returning the signed permission letter to us.

(3) Permission letter log:

This log is simply a record of what happened to the permission letters. There may be parents whom you feel should not receive the permission letter. For example, the parents of one child receiving medication may not be able to read. If this were the case, you would indicate on the log that the letter was not sent for that reason.

The log is also used to record other attempts to invite parents to participate in the study. Such attempts are completely optional. You may wish to call the parent and explain what the study is about, bring this up at a parent meeting, or jot a note on the permission letter saying the parent can call you if they have any questions. Such activities would be entered in the log.

How Do I Proceed?

1. Address and mail the parent permission letter. *(Remember to match the permission letter number to the child's number on the mini-questionnaire so the letter goes to the right person.)*
2. Complete the permission letter log. *(It takes 1-2 minutes to finish.)*
3. Complete the mini-questionnaire(s). *(It takes 5-8 minutes to complete one.)*
4. Return mini-questionnaire(s), permission letter log, and unused parent letters in the large brown self-addressed envelope.
5. It may be necessary to send a reminder letter to the parent. If such is the case, you will receive a reminder letter to be addressed and mailed.
6. Please return by May 19, 1975 so we can complete the study before summer vacation.
7. If you have any questions, please call or write.
8. Thank you. The survey results and bibliography will be mailed to you in early fall.

Sincerely,

Kenneth Gadow

Kenneth Gadow
Survey Project Director

APPENDIX E
COVER LETTER: PHASE TWO

8

APPENDIX F

MINI-QUESTIONNAIRE: HYPERACTIVITY

FOR OFFICE USE ONLY	
IDT ______	1-2-3
IDC ______	4-5-6
DS ______	7-8
RE ______	9-10

UNIVERSITY OF ILLINOIS
CHILDREN'S RESEARCH CENTER

Mini-Questionnaire: Hyperactivity

(Circle one code number to answer each question unless otherwise instructed.)

This questionnaire refers to child #______: 15-17 Sex____ 18 Age____ 19 Race____ 20

Medication(s) ______________________ 21-34

Reason for medication ______________________ 35-37

(Please correct any errors in the above description.)

1. Is this child presently receiving medication?
   Yes (*Skip to Q.7*) 1 38
   No 2

2a. What medicine(s) was this child receiving when it was decided to end medication? . . . . ______________ 39-46

b. *(For the remainder of the questionnaire, answer questions referring to medication in terms of when the child was last on medicine.)*

3a. Did this child receive any other medications during the school year?
   Yes 1 47
   No (*Skip to Q.4*) 2
   Uncertain (*Skip to Q.4*) . 3

b. What were the names of those medicines? ______________ 48-55

4. Why was the medication terminated? ______________ 56-58

____

5a. Did you participate in the decision to terminate medication?
   Yes 1 59
   No (*Skip to Q.9*) 2

b. Who initiated the idea to terminate medication? ______________ 60-61

6a. Were you asked to observe the child and report your observations?
   Yes 1 62
   No (*Skip to Q.9*) 2

b. To whom did you report your observations? (*Skip to Q.9*) ______________ 63-64

7. What medication(s) is this child receiving now? ______________ 65-72

____

card 02

8a. Did this child receive any other medication during the school year that he/she is not receiving now?
   Yes 1 15
   No (*Skip to Q.9*) 2
   Uncertain (*Skip to Q.9*) . 3

b. What are the names of these medicines? ______________ 16-23

9. How were you informed:

a. This child was receiving medication ______________ 24-25

b. The name of the medication(s) ______________ 26-27

10. Do you have access to the child's medical report?
   Yes 1 28
   No (*Skip to Q.13*) 2

11. What medications, if any, are listed? ______________ 29-36

12. What reason is given for the medication? ______________ 37-39

13a. Have you observed anything that you think are side effects of the medication?
   Yes 1 40
   No (*Skip to Q.14a*) . . . 2

b. *(If yes, please specify.)* ______________ 41-43

14a. Do you think this child received medication regularly?
   Yes (*Skip to Q.15*) . . . 1 44
   No 2
   Uncertain 3

b. *(If no or uncertain, specify why.)* ______________ 45-46

15. Have you worked with the parents on how to manage this child's hyperactive behavior?
   Yes 1 47
   No 2

16. Have you observed the child when he/she was not receiving medication?
   Yes 1 48
   No 2

17a. Were you informed of possible side effects of the medication?
   Yes 1 49
   No (*Skip to Q.18*) 2

b. *(If yes)*, By whom? ______________ 50-51

18. Do you feel the medication has resulted in the following:

	Yes	No	Don't Know	
a. Reduced the child's hyperactivity?	1	2	3	52
b. Improved the child's attention to tasks?	1	2	3	53
c. Improved the child's ability to follow directions?	1	2	3	54
d. Improved interaction with classmates?	1	2	3	55

19. Do you think this child should be receiving:

a. Higher dosage of medication 1 56
b. No medication at all 2
c. Lower dosage of medication 3
d. Same dosage (*Skip to Q.21*) 4
e. Uncertain (*Skip to Q.21*) 5
f. Uncertain, have not seen child off medication (*Skip to Q.21*) 6

20. Why do you think the dosage should be changed? ______________________ 57-58

____

21. Was this child placed on a "drug holiday," that is, taken off medication some time during the school year to see if medication was still necessary?

Yes 1 59
No 2
Uncertain 3

22. Did you participate in the decision to use medication or in the diagnosis of hyperactivity?

Yes 1 60
No (*Skip to Q.23*) . . . 2

(*If yes*)

	Yes	No		(*If yes*) To Whom?	
a. Did you suggest the child be placed on medication?	1	2	61	______	62-63
b. Did you suggest the child see a physician?	1	2	64	______	65-66
c. Did you say the child was hyperactive?	1	2	67	______	68-69
d. Did any school staff member suggest that the child might benefit from medication?	1	2	15	______	card 03 16-17
e. Did any school staff member suggest that the child should be seen by a physician?	1	2	18	______	19-20
f. Did you evaluate the child's classroom behavior?	1	2	21	______	22-23
g. Did you evaluate the child's behavior on a specific rating scale?	1	2	24	______	25-26

23. In months, how long has this child been in your program this school year? ______ 27

24. In months, how long has this child received medication during this school year? ______ 28

25. Has this child been receiving medication since he/she entered your program?

Yes 1 29
No 2

26. Did you evaluate the effect of the medication on the child's behavior?

Yes 1 30
No (*Skip to Q.27a*) . . . 2

(*If yes*)

	Yes	No		(*If yes*) To Whom?	
a. Did you suggest that the dosage be changed?	1	2	31	______	32-33
b. Did you report the effect the medication had on the child's behavior?	1	2	34	______	35-36
c. Did you report the effect of different dosages on the child's behavior?	1	2	37	______	38-39
d. Did you report side effects of the medication?	1	2	40	______	41-42
e. Did you evaluate dosage effects on a rating scale?	1	2	43	______	44-45

27a. Did this child receive medication at school?

Yes 1 46
No (*Skip to Q.28a*) . . . 2

b. (*If yes*) Who gives the medication to the child? ______________ 47-48

28a. Does this child have any other clearly identifiable disorder or handicap, for example, Down's syndrome, cerebral palsy, brain damage, convulsive disorders, mental retardation, etc.?

Yes 1 49
No (*Skip to Q.29*) 2

b. (*If yes, please specify the disorder or handicap.*) ______________ 50-52

29. What problems, if any, have you had concerning this child and medication?

____ 53-54
____ 55-56
____ 57-58
____ 59-60
____

30. Thank you.

UNIVERSITY OF ILLINOIS
CHILDREN'S RESEARCH CENTER

Mini-Questionnaire: Convulsive Disorders

FOR OFFICE USE ONLY
IDT ________ 1-2-3
IDC ________ 4-5-6
DS ________ 7-8
RE ________ 9-10

(Circle one code number to answer each question unless otherwise instructed.)

This questionnaire refers to child #______:15-17 Sex______ 18 Age______ 19

Race______ 20 Medication(s) ________________ 21-34

Reason for medication ________________ 35-37

(Please correct any errors in the above description.)

1. Is this child presently receiving medication?
Yes (*Skip to Q.5*) 1 38
No 2

2a. What medicine(s) was this child receiving when it was decided to end medication? . . . . ________________ 39-46

b. *(For the remainder of the questionnaire, answer questions referring to medication in terms of when the child was last on medicine.)*

3a. Did this child receive any other medications during the school year?
Yes 1 47
No (*Skip to Q.4*) 2
Uncertain (*Skip to Q.4*) . 3

b. What were the names of those medicines? . . . . ________________ 48-55

4. Why was the medication terminated? *(Skip to Q.7)* ________________ 56-58

5. What medication(s) is this child receiving now? ________________ 59-66

____

6a. Did this child receive any other medications during the school year that he/she is not receiving now?
Yes 1 67
No (*Skip to Q.7*) 2
Uncertain (*Skip to Q.7*) . 3

b. What are the names of these medicines? ________________ 68-75

7. How were you informed: card 02

a. This child was receiving medication ________________ 15-16

b. The name of the medication(s) ________________ 17-18

2

8. Did this child receive more than one medication at a time?
Yes 1 19
No (*Skip to Q.11*) 2

9. Were these medicines used for the same disorder?
Yes (*Skip to Q.11*) . . . 1 20
No 2
Uncertain (*Skip to Q.11*). 3

10. For what disorder was each medication prescribed? ________________ 21-28

____

11. Was this child switched from one medication to another during the school year?
Yes 1 29
No 2

12. Do you have access to the child's medical report?
Yes 1 30
No (*Skip to Q.15a*) . . . 2

13. What medications, if any, are listed? ________________ 31-38

14. What reason is given for the medication? ________________ 39-41

15a. Have you observed anything that you think are side effects of the medication?
Yes 1 42
No (*Skip to Q.16a*) . . . 2

b. *(If yes, please specify)* ________________ 43-48

16a. Do you think this child receives medication regularly?
Yes (*Skip to Q.17a*) . . . 1 49
No 2
Uncertain 3

b. *(If no or uncertain, specify why)* ________________ 50-51

17a. Were you informed of possible side effects of the medication?
Yes 1 52
No (*Skip to Q.18*) 2

b. *(If yes)* By whom? ________________ 53-54

18. Have you observed the child when he/she was not receiving medication?
Yes 1 55
No 2

19. Are seizures, because of their frequency or magnitude, this child's primary handicapping condition?
Yes 1 56
No 2

20. Do you think this child should be receiving:

a. Higher dosage of medication 1 57
b. No medication at all 2
c. Lower dosage of medication 3
d. Same dosage (*Skip to Q.22*) 4
e. Uncertain (*Skip to Q.22*) 5
f. Uncertain, have not seen child off medication (*Skip to Q.22*) 6

21. Why do you think the dosage should be changed? ____________ 58-59

____________ 60-61

22. Was this child placed on a "drug holiday," that is, taken off medication some time during the school year to see if medication was still necessary?

Yes 1 62
No 2
Uncertain 3

23. In months, how long has this child been in your program this school year? _____ 63

24. In months, how long has this child received medication during this school year? . . . . _____ 64

25. Has this child been receiving medication since he/she entered your program?

Yes 1 65
No 2

26. Have you observed this child having the following more frequently than the other children in the classroom who are not receiving medication for convulsive disorders? *(Circle all that apply)*

a. Drowsy or sleepy 1 66-70
b. Blank stare 2
c. Spaced out, that is, appears to be off in another world 3
d. Poor coordination or balance 4
e. Confused 5

card 03

27a. Does this child have any other clearly identifiable disorder or handicap, for example, Down's syndrome, cerebral palsy, brain damage, mental retardation, hyperactivity, etc.?

Yes 1 15
No (*Skip to Q.28a*) . . . 2

b. *(If yes, please specify the disorder or handicap)* ____________ 16-18

28a. Did this child receive medication at school?

Yes 1 19
No (*Skip to Q.29*) 2

b. *(If yes)* Who gives the medication to the child? ____________ 20-21

	Yes	No	*(If yes)* By Whom?	
29. Were you informed of the following:				
a. The kind of seizure this child has	1	2^{22}	________	23-24
b. What the seizure would look like if the child had a seizure at school	1	2^{25}	________	26-27
c. Side effects of the medication	1	2^{28}	________	29-30
d. How to manage the child if he/she had a seizure at school .	1	2^{31}	________	32-33
30. Have you been asked to do the following:				
a. Report the occurance of seizures	1	2^{34}	________	35-36
b. Describe the seizure to assist in the diagnosis of the convulsive disorder	1	2^{37}	________	38-39
c. Report the side effects of the medication	1	2^{40}	________	41-42
d. Report the effect of different dosage levels on the child's behavior	1	2^{43}	________	44-45

31. What type of seizure does this child have, or if completely controlled by medication, what type of seizure did this child have?

a. Grand mal 1 46-47
b. Petit mal 2
c. Grand mal and petit mal 3
d. Uncertain 4
e. Was never informed 5
f. Child has never had a seizure, but is receiving medication for EEG reading 6
g. Other *(Specify)* ____________ 7

32a. Does this child have seizures at school?

Yes 1 48
No (*Skip to Q.33*) . . . 2

b. How frequently does this child have seizures at school? *(Use day, week, or month, whichever is appropriate.)* ____________ 49-50 51-52

33. What problems, if any, have you had concerning this child and medication?

____________ 53-54

____________ 55-56

____________ 57-58

____________ 59-60

34. Thank you.

APPENDIX H

MINI-QUESTIONNAIRE: GENERAL

UNIVERSITY OF ILLINOIS
CHILDREN'S RESEARCH CENTER

Mini-Questionnaire

FOR OFFICE USE ONLY
IDT__________ 1-2-3
IDC__________ 4-5-6
DS__________ 7-8
RE__________ 9-10

(Circle one code number to answer each question unless otherwise instructed.)

This questionnaire refers to child #______:15-17 Sex____18 Age____19 Race____20

Medication(s)____________________ 21-34

Reason for medication____________________ 35-37

(Please correct any errors in the above description.)

1. Is this child presently receiving medication?
Yes (*Skip to Q.7*) 1 38
No 2

2a. What medicine(s) was this child receiving when it was decided to end medication? . . . . __________ 39-46

b. *(For the remainder of the questionnaire, answer questions referring to medication in terms of when the child was last on medicine.)*

3a. Did this child receive any other medications during the school year?
Yes 1 47
No (*Skip to Q.4*) 2
Uncertain (*Skip to Q.4*) . 3

b. What were the names of those medicines? __________ 48-55

4. Why was the medication terminated? __________ 56-58

____

5a. Did you participate in the decision to terminate medication?
Yes 1 59
No (*Skip to Q.9*) 2

b. Who initiated the idea to terminate medication? __________ 60-61

6a. Were you asked to observe the child and report your observations?
Yes 1 62
No (*Skip to Q.9*) 2

b. To whom did you report your observations? (*Skip to Q.9*) __________ 63-64

7. What medication(s) is this child receiving now? __________ 65-72

____

2

8a. Did this child receive any other medication during the school year that he/she is not receiving now?
card 02
Yes 1 15
No (*Skip to Q.9*) 2
Uncertain (*Skip to Q.9*) . 3

b. What are the names of these medicines? __________ 16-23

9. How were you informed:

a. This child was receiving medication __________ 24-25

b. The name of the medication(s) __________ 26-27

10. Did this child receive more than one medication at a time?
Yes 1 28
No (*Skip to Q.13*) 2

11. Were these medicines used for the same disorder?
Yes (*Skip to Q.13*). . . . 1 29
No 2
Uncertain (*Skip to Q.13*). 3

12. For what disorder was each medication prescribed? __________ 30-38

____

13. Was this child switched from one medication to another during the school year?
Yes 1 39
No 2

14. Do you have access to the child's medical report?
Yes 1 40
No (*Skip to Q.17a*). . . . 2

15. What medications, if any, are listed? __________ 41-48

16. What reason is given for the medication? __________ 49-51

17a. Have you observed anything that you think are side effects of the medication?
Yes 1 52
No (*Skip to Q.18a*). . . . 2

b. (If yes, please specify) __________ 53-58

18a. Do you think this child receives medication regularly?
Yes (*Skip to Q.19a*) . . . 1 59
No 2
Uncertain 3

b. (If no or uncertain, specify why) __________ 60-61

19. Have you observed the child when he/she was not receiving medication?

Yes 1 62
No 2

20a. Were you informed of possible side effects of the medication?

Yes 1 63
No (*Skip to Q.21*) 2

b. (*If yes*), By whom? ______________________________ 64-65

21. Do you feel the medication has helped the child in regard to the disorder for which the medication was prescribed?

Yes 1 66
No 2
Uncertain 3

22. Do you think this child should be receiving:

a. Higher dosage of medication 1 67
b. No medication at all 2
c. Lower dosage of medication 3
d. Same dosage (*Skip to Q.24*) 4
e. Uncertain (*Skip to Q.24*) 5
f. Uncertain, have not seen child off medication (*Skip to Q.24*) 6

23. Why do you think the dosage should be changed? ______________________ 68-69

____

24. Was this child placed on a "drug holiday," that is, taken off medication some time during the school year to see if medication was still necessary?

Yes 1 70
No 2
Uncertain 3

25. Did you participate in the decision to use medication or in the diagnosis of this child's disorder?

Yes 1 71
No (*Skip to Q.26*) . . . 2

card 03

(*If yes*)	Yes	No		(*If yes*) To Whom?	
a. Did you suggest the child be placed on medication? . .	1	2	15	________	16-17
b. Did you suggest the child see a physician?	1	2	18	________	19-20
c. Did any school staff member suggest that the child might benefit from medication?	1	2	21	________	22-23
d. Did any school staff member suggest that the child should be seen by a physician?	1	2	24	________	25-26
e. Did you evaluate the child's classroom behavior? . . .	1	2	27	________	28-29
f. Did you evaluate the child's behavior on a specific rating scale?	1	2	30	________	31-32

26. In months, how long has this child been in your program this school year? _____ 33

27. In months, how long has this child received medication during this school year? . . . . _____ 34

28. Has this child been receiving medication since he/she entered your program?

Yes 1 35
No 2

29. Did you evaluate the effect of the medication on the child's behavior?

Yes 1 36
No (*Skip to Q.30a*). . . . 2

(*If yes*)	Yes	No		(*If yes*) To Whom?	
a. Did you suggest that the dosage be changed?	1	2	37	________	38-39
b. Did you report the effect the medication had on the child's behavior?	1	2	40	________	41-42
c. Did you report the effect of different dosages on the child's behavior?	1	2	43	________	44-45
d. Did you report side effects of the medication? . . .	1	2	46	________	47-48
e. Did you evaluate dosage effects on a rating scale? .	1	2	49	________	50-51

30a. Did this child receive medication at school?

Yes 1 52
No (*Skip to Q.31a*) . . . 2

b. (*If yes*) Who gives the medication to the child? ____________________ 53-54

31a. Does this child have any other clearly identifiable disorder or handicap, for example, Down's syndrome, cerebral palsy, brain damage, convulsive disorders, mental retardation, hyperactivity, etc.?

Yes 1 55
No (*Skip to Q.32*) 2

b. (*If yes, please specify the disorder or handicap*) ____________________ 56-58

32. What problems, if any, have you had concerning this child and medication?

____ 59-60
____ 61-62
____ 63-64
____ 65-66
____ 67-68

33. Thank you.

APPENDIX I: PARENT PERMISSION LETTER

University of Illinois
Children's Research Center
51 Gerty Drive
Champaign, Illinois 61820
(217) 333-4123

Letter
Number__________

What medicines are given to preschool and kindergarten-aged children? For what reasons are medication prescribed? How can I better teach and understand a child receiving medication? These are examples of questions that teachers ask concerning the medicines that young children receive. If teachers know the kinds of medication that are prescribed and the reasons for which they are used, they can be more responsive to the needs of the child. We are doing this survey all over Illinois. Your child's teacher will directly benefit from this survey by receiving a booklet on the medicines that we find in this study.

How Does The Project Work?

(1) We will send you a small chart of some of the medicines that are prescribed for children.

(2) You will simply match the medicine your child is taking, or used to take, to the picture of the medicine in the chart.

(3) A telephone interviewer from the University of Illinois will call you on the telephone and ask questions about the medicine your child took and how well you thought it worked. The phone call will take about 10-15 minutes.

(4) That's all there is to it.

This study is completely voluntary. You are under no obligation to participate. If you decide to participate and change your mind, you can stop at any time. No names will ever be used. All information is recorded by numbers only.

. . . .

I hereby give permission to have Dr. Robert Sprague and his staff at Children's Research Center send me a color chart of children's medicine and call me on the telephone to ask a few questions about the medicine my child received.

Name (please print)	Signature of Parent(s)
Street Address	Date
City Zip Code	
(Area Code) Telephone Number	

When would you like us to call? _____Morning (9:00-11:30)

_____Afternoon (1:00-4:30)

_____Evening (6:00-9:00)

PLEASE RETURN THIS PERMISSION LETTER AS SOON AS POSSIBLE.
A SELF-ADDRESSED, STAMPED ENVELOPE IS ENCLOSED.

APPENDIX J: SCHOOL LETTER

Dear Parent:

Our school is participating in a project which will find out the medicines that young children receive to help them with problems at home and at school. This has never been done before. This information is very valuable to both teachers and doctors.

Our school is mailing this letter to you. If you would like to participate in this project, please fill out the permission letter and mail it in the stamped, self-addressed envelope that is enclosed with this letter.

We hope you decide to participate. This project is very important and will take up very little time. All you have to do is chat on the telephone for a few minutes.

____
Teacher

APPENDIX K

PARENT PERMISSION LETTER LOG

FOR OFFICE USE ONLY

Parent Permission Letter Log ID__________ 1-3

DS__________ 4-5

Child #__________ 10-16 SEX_____ AGE_____ RACE_____

Medication(s)__________

Reason for medication__________

1. Did you mail the parent permission letter to this child's parent?

Yes *(Skip to Q.3)* 1 17
No 2

2. For what reason was the letter not sent to this parent?__________ 18-19
__________ 20-21
____

3a. Although completely optional, did you (or will you) contact the parent in any other way concerning the study?

Yes 1 22
No 2

b. *(If yes, specify how they will be contacted.)*__________ 23-24
__________ 25-26

Child #__________ 10-16 SEX_____ AGE_____ RACE_____

Medication(s)__________

Reason for medication__________

1. Did you mail the parent permission letter to this child's parent?

Yes *(Skip to Q.3)* 1 17
No 2

2. For what reason was the letter not sent to this parent?__________ 18-19
__________ 20-21
____

3a. Although completely optional, did you (or will you) contact the parent in any other way concerning the study?

Yes 1 22
No 2

b. *(If yes, specify how they will be contacted.)*__________ 23-24
__________ 25-26

Child #__________ 10-16 SEX_____ AGE_____ RACE_____

Medication(s)__________

Reason for medication__________

1. Did you mail the parent permission letter to this child's parent?

Yes *(Skip to Q.3)* 1 17
No 2

2. For what reason was the letter not sent to this parent?__________ 18-19
__________ 20-21
____

3a. Although completely optional, did you (or will you) contact the parent in any other way concerning the study?

Yes 1 22
No 2

b. *(If yes, specify how they will be contacted.)*__________ 23-24
__________ 25-26

Child #__________ 10-16 SEX_____ AGE_____ RACE_____

Medication(s)__________

Reason for medication__________

1. Did you mail the parent permission letter to this child's parent?

Yes *(Skip to Q.3)* 1 17
No 2

2. For what reason was the letter not sent to this parent?__________ 18-19
__________ 20-21
____

3a. Although completely optional, did you (or will you) contact the parent in any other way concerning the study?

Yes 1 22
No 2

b. *(If yes, specify how they will be contacted.)*__________ 23-24
__________ 25-26

APPENDIX L

PARENT COVER LETTER

University of Illinois at Urbana-Champaign

CHILDREN'S RESEARCH CENTER

31 Gerty Drive
Champaign, Illinois 61820
(217) 333-4123

Dear Parent:

Thank you for deciding to participate in our medicine project. As you can see, the *Children's Medication Chart* is enclosed with this letter. All you have to do is see if the medicine(s) your child is taking or used to take, is pictured in the Chart. We are interested in medicines that your child received during the school year. Within the next two weeks, someone from our staff will call you on the telephone and ask questions about the medicine in the Chart your child received. If the medicine is not in the Chart, you can simply tell the interviewer what the medicine look like.

Along with the *Children's Medication Chart*, there is a large brown envelope. After we call you, we would like you to send the Chart back to us. Just like everyone else, we are trying to save money. We will use the Chart to send to another parent.

DIRECTIONS:

1. Find all the medicines your child received during the school year that are in the Chart.
2. An interviewer will call you on the telephone within the next two weeks.
3. After the telephone interviewer talks with you, please mail the *Children's Medication Chart* back to us in the large brown envelope.
4. That's all there is to it.
5. Thank you!

Sincerely,

Kenneth Gadow

Kenneth Gadow
Survey Project Director

CHILDREN'S MEDICATION CHART

Developed by Kenneth D. Gadow and Robert L. Sprague at Children's Research Center, 51 Gerty Drive, Champaign, Illinois 61820.

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This chart is intended for purposes of survey identification *only*.

1

Atarax® (10 mg)

2

Atarax® (25 mg)

3

Atarax® (50 mg)

4

Benadryl® (25 mg)

5

Benadryl® Kapseals® (50 mg)

6

Celontin® Kapseals® (0.15 g)

7

Celontin® Kapseals® (0.3 g)

8

Deaner® (25 mg)

9

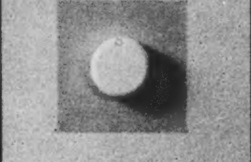
Dexedrine® (5 mg)

10

Dexedrine® Spansule® (5 mg)

11

Dexedrine® Spansule® (10 mg)

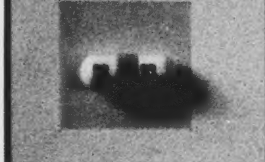
12

Diamox® (125 mg)

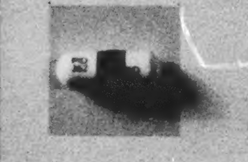
13

Diamox® Sequels® (500 mg)

14

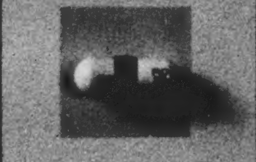
Diamox® (250 mg)

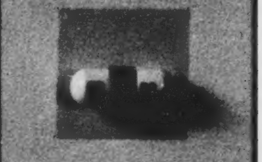
15

Dilantin® Kapseals® (30 mg)

16

Dilantin Kapseals® (100 mg)

17

Dilantin® Infatabs® (50 mg)

18

Dilantin® with ¼ grain
Phenobarbital Kapseals®

19

Dilantin® with ½ grain
Phenobarbital Kapseals®

20

Ekko® (100 mg)

21

Ekko® (200 mg)

22

Elavil® (10 mg)

23

Elavil® (25 mg)

24

Eskabarb® Spansule® (65 mg)

25

Eskabarb® Spansule® (97 mg)

26

Gemonil® (100 mg)

27

Libritabs® (5 mg)

28

Libritabs® (10 mg)

29

Librium® (5 mg)

30

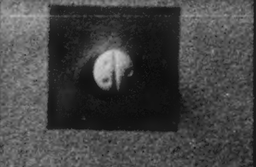
Librium® (10 mg)

31

Loxitane® (10 mg)

32

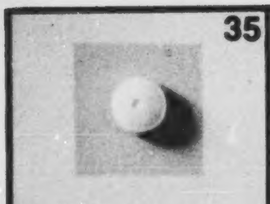
Loxitane® (25 mg)

33

Mebaral® (32 mg)

34

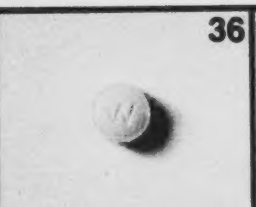
Mebaral® (50 mg)

35



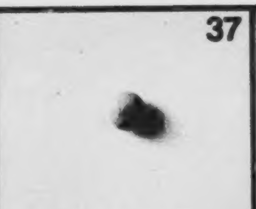
Mebaral® (100 mg)

36



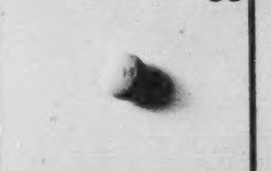
Mebroin®

37



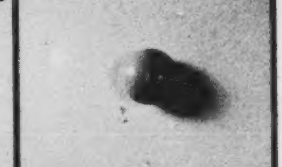
Mellaril® (10 mg)

38



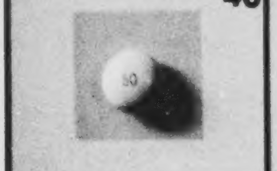
Mellaril® (15 mg)

39



Mellaril® (25 mg)

40



Mellaril® (50 mg)

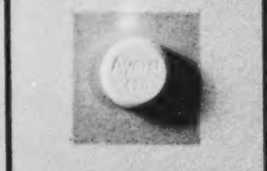
41

Mesantoin® (100 mg)

42

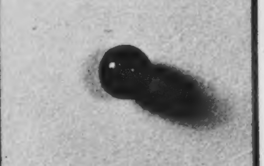
Mysoline® (50 mg)

43



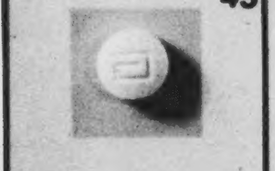
Mysoline® (250 mg)

44



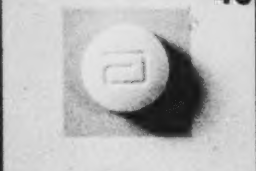
Paradione® (150 mg)

45



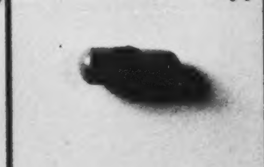
Peganone® (250 mg)

46



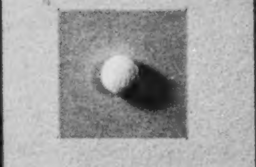
Peganone® (500 mg)

47



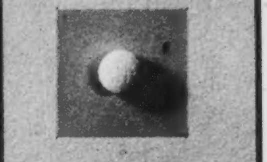
Phelantin® Kapseals®

48



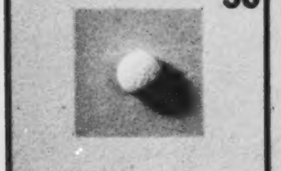
Phenobarbital (15 mg)

49



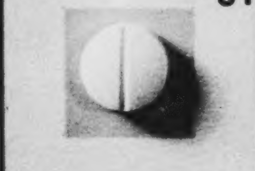
Phenobarbital (30 mg)

50



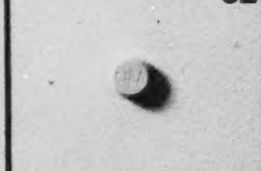
Phenobarbital (60 mg)

51



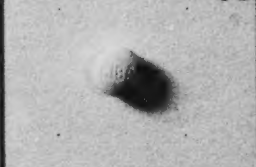
Phenurone® (500 mg)

52



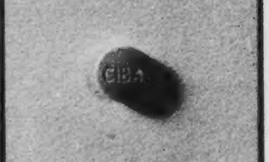
Ritalin® (5 mg)

53



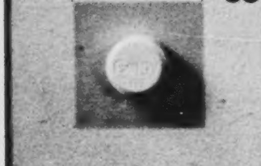
Ritalin® (10 mg)

54



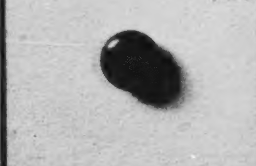
Ritalin® (20 mg)

55



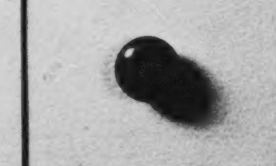
Tegretol® (200 mg)

56



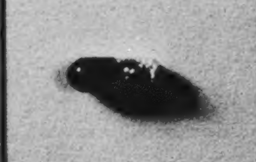
Thorazine® (10 mg)

57



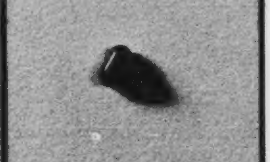
Thorazine® (25 mg)

58



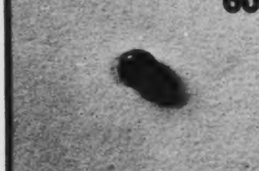
Thorazine® Spansule® (30 mg)

59



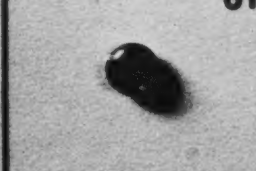
Tofranil® (10 mg)

60



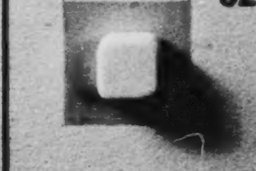
Tofranil® (25 mg)

61



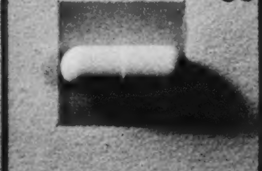
Tofranil® (50 mg)

62



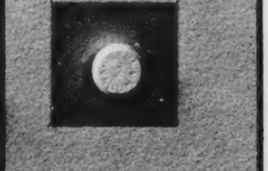
Tridione® Dulcet® (150 mg)

63



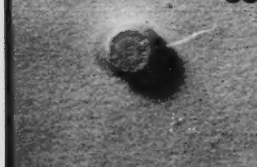
Tridione® (300 mg)

64



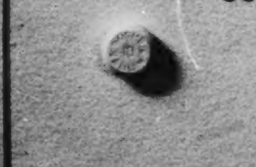
Valium® (2 mg)

65



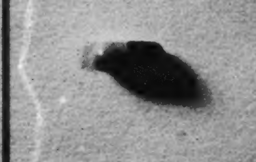
Valium® (5 mg)

66



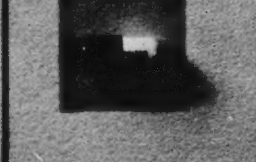
Valium® (10 mg)

67



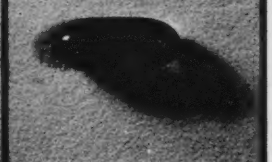
Vistaril® (25 mg)

68



Vistaril® (50 mg)

69



Zarontin® (0.25 g)

FOR OFFICE USE ONLY

IDT____________ 1--3

Time Began____________ IDC____________ 4--6

PT____________ 7--9

UNIVERSITY OF ILLINOIS
CHILDREN'S RESEARCH CENTER DS____________ 10--11

Parent Questionnaire RE____________ 12--13

PART I: GENERAL

1. Is your child a boy or a girl? 20
   Boy 1
   Girl 2

2. How old is your child in years and months? ____________ 21--23

2a. What is the name of your child's teacher? ____________

3. Is your child receiving medication *now*? 24
   Yes 1
   No (*Skip to Q.5*) 2

PART II: MEDICATION

4. Did you find a picture of the medicine your child is taking in the *Children's Medication Chart*? 25
   Yes (*Skip to Q.6*) 1
   No (*Skip to Q.7a*) 2
   Both Yes & No (*Skip to Q.6*) 3

5. Can you find a picture of the last medicine(s) your child was taking when it was decided to end medication from the pictures in the *Children's Medication Chart*? 26
   Yes 1
   No (*Skip to Q.7a*) 2
   Both Yes & No 3

6. What is the name and number of the medicine(s) you found in the *Chart*?
   a. Medicine A____________ 27--28
   b. Medicine B____________ 29--30
   c. Medicine C____________ 31--32
   d. Medicine D____________ 33--34
   e. Medicine E____________ 35--36

7a. Does (*did*) your child receive any medicines *not* pictured in the *Children's Medication Chart*?
   Yes 1
   No (*Skip to Q.8*) 2

7b. For what reason? ____________

7c. How would you describe the medicine(s) (color, shape, marks, name, dosage)?
   d. Medicine F____________ 37--38
   e. Medicine G____________ 39--40
   f. Medicine H____________ 41--42

CARD 02

8. Medication A:____________ 20--21
   a. Is (was) the name of the medicine on the bottle? 22
      Yes 1
      No 2
      Don't Know 3
   b. How many times a day does (did) your child get this medicine?____________ 23
   c. When during the day does (did) your child receive this medicine?____________ 24--29
   d. For how long has (did) your child been getting this medicine?____________ 30--31
   e. For what reason does (did) your child receive this medicine?____________ 32--33
      ____________ 34--35
      ____________ 36--37
      ____
   f. (If medicine no longer taken) Why?____________ 38--39
      ____________ 40--41

9. Medication B:____________ 42--43
   a. Is (was) the name of the medicine on the bottle? 44
      Yes 1
      No 2
      Don't Know 3
   b. How many times a day does (did) your child get this medicine?____________ 45
   c. When during the day does (did) your child get this medicine?____________ 46--51
   d. For how long has (did) your child received this medicine?____________ 52--53
   e. For what reason does (did) your child get this medicine?____________ 54--55
      ____________ 56--57
      ____________ 58--59
   f. (If the medicine no longer taken) Why?____________ 60--61
      ____________ 62--63

CARD 03

10. **Medication C:**____________________ 20-21

a. Is (was) the name of the medicine on the bottle? 22
Yes 1
No 2
Don't Know 3

b. How many times a day does (did) your child get this medicine?__________ 23

____

c. When during the day does (did) your child receive this medicine?__________ 24-29

____

d. For how long has (did) your child been getting this medicine?__________ 30-31

____

e. For what reason does (did) your child receive this medicine?__________ 32-33

____ 34-35

____ 36-37

____ 38-39

f. (If medicine no longer taken) Why?____________________ 40-41

____

11. **Medication D:**____________________ 42-43

a. Is (was) the name of the medicine on the bottle? 44
Yes 1
No 2
Don't Know 3

b. How many times a day does (did) your child get this medicine?__________ 45

____

c. When during the day does (did) your child get this medicine?__________ 46-51

____

d. For how long has (did) your child received this medicine?__________ 52-53

____

e. For what reason does (did) your child get this medicine?__________ 54-55

____ 56-57

____ 58-59

f. (If the medicine no longer taken) Why?____________________ 60-61

____ 62-63

CARD 03

12. **Medication E:**____________________ 20-21

a. Is (was) the name of the medicine on the bottle? 22
Yes 1
No 2
Don't Know 3

b. How many times a day does (did) your child get this medicine?__________ 23

____

c. When during the day does (did) your child receive this medicine?__________ 24-29

____

d. For how long has (did) your child been getting this medicine?__________ 30-31

____

e. For what reason does (did) your child receive this medicine?__________ 32-33

____ 34-35

____ 36-37

____

f. (If medicine no longer taken) Why?____________________ 38-39

____ 40-41

13. **Medication F:**____________________ 42-43

a. Is (was) the name of the medicine on the bottle? 44
Yes 1
No 2
Don't Know 3

b. How many times a day does (did) your child get this medicine?__________ 45

____

c. When during the day does (did) your child get this medicine?__________ 46-51

____

d. For how long has (did) your child received this medicine?__________ 52-53

____

e. For what reason does (did) your child get this medicine?__________ 54-55

____ 56-57

____ 58-59

f. (If the medicine no longer taken) Why?____________________ 60-61

____ 62-63

14. Medication G: ____________________ 20--21 CARD 04

a. Is (was) the name of the medicine on the bottle?

Yes 1 22
No 2 23
Don't Know 3

b. How many times a day does (did) your child get this medicine? __________ 23

____

c. When during the day does (did) your child receive this medicine? __________ 24--29

____

d. For how long has (did) your child been getting this medicine? __________ 30--31

____

e. For what reason does (did) your child receive this medicine? __________ 32--33

____ 34--35

____ 36--37

____

f. (If medicine no longer taken) Why? ____________________ 38--39

____

15. Medication H: ____________________ 42--43

a. Is (was) the name of the medicine on the bottle?

Yes 1 44
No 2
Don't Know 3

b. How many times a day does (did) your child get this medicine? __________ 45

____

c. When during the day does (did) your child get this medicine? __________ 46--51

____

d. For how long has (did) your child received this medicine? __________ 52--53

____

e. For what reason does (did) your child get this medicine? __________ 54--55

____ 56--57

____ 58--59

f. (If the medicine no longer taken) Why? ____________________ 60--61

____ 62--63

CARD 06

16. During the school year, did your child receive any other medicines pictured in the *Children's Medication Chart*?

Yes 1 20
No (*Skip to Q. 18a*) 2

17. What is the name and number of the medicine(s) you found in the *Chart*?

a. Medicine I ______________ 21--22
b. Medicine J ______________ 23--24
c. Medicine K ______________ 25--26
d. Medicine L ______________ 27--28
e. Medicine M ______________ 29--30

18a. Did your child receive any other medicines during the school year that are *not* pictured in the *Children's Medication Chart*?

Yes 1 31
No (*Skip to Q.20*) 2

18b. For what reason did your child receive this medicine(s)? ____________________

____

19. How would you describe the medicine(s) (color, shape, marks, name, dosage)?

a. Medicine N ____________________________________ 32--33
b. Medicine O ____________________________________ 34--35
c. Medicine P ____________________________________ 36--37

CARD 07

20. Medication I ____________________ 20--21

a. How many times a day did your child get this medicine? __________ 22

b. When during the day did your child get this medicine? __________ 23--28

____

c. For how long did your child receive this medicine? __________ 29--30

d. For what reason did your child get this medicine __________ 31--32

____ 33--34

____ 35--36

____

____

e. Why is your child no longer receiving this medication? __________ 37--38

____ 39--40

____

____

21. **Medication J:** ______________________ 41-42

a. How many times a day did your child get this medicine? ______________ 43

b. When during the day did your child receive this medicine? ______________ 44-49

____

c. For how long did your child receive this medicine? ______________ 50-51

____

d. For what reason did your child receive this medicine? ______________ 52-53

____ 54-55

____ 56-57

____

e. Why is your child no longer getting this medicine? ______________ 58-59

____ 60-61

____

22. **Medicine K:** ______________________ 20-21 CARD 08

a. How many times a day did your child get this medicine? ______________ 22

b. When during the day did your child get this medicine? ______________ 23-28

____

c. For how long did your child receive this medicine? ______________ 29-30

____

d. For what reason did your child get this medicine? ______________ 31-32

____ 33-34

____ 35-36

____

e. Why is your child no longer receiving medicine? ______________ 37-38

____ 39-40

____

23. **Medication L:** ______________________ 41-42

a. How many times a day did your child get this medicine? ______________ 43

b. When during the day did your child receive this medicine? ______________ 44-49

____

c. For how long did your child receive this medicine? ______________ 50-51

____

d. For what reason did your child receive this medicine? ______________ 52-53

____ 54-55

____ 56-57

____

e. Why is your child no longer getting this medicine? ______________ 58-59

____ 60-61

____

24. **Medicine M:** ______________________ 20-21 CARD 09

a. How many times a day did your child get this medicine? ______________ 22

b. When during the day did your child get this medicine? ______________ 23-28

____

c. For how long did your child receive this medicine? ______________ 29-30

____

d. For what reason did your child get this medicine? ______________ 31-32

____ 33-34

____ 35-36

____

e. Why is your child no longer receiving medicine? ______________ 37-38

____ 39-40

____

25. **Medication N:**______________________ 41-42

a. How many times a day did your child get this medicine?______________ 43

b. When during the day did your child receive this medicine?______________ 44-49

____

c. For how long did your child receive this medicine?______________ 50-51

____

d. For what reason did your child receive this medicine?______________ 52-53

____ 54-55

____ 56-57

____

e. Why is your child no longer getting this medicine?______________ 58-59

____ 60-61

____

26. Medicine O:______________________ 20-21 **CARD 10**

a. How many times a day did your child get this medicine?______________ 22

b. When during the day did your child get this medicine?______________ 23-28

____

c. For how long did your child receive this medicine?______________ 29-30

____

d. For what reason did your child get this medicine?______________ 31-32

____ 33-34

____ 35-36

____

e. Why is your child no longer receiving medicine?______________ 37-38

____ 39-40

____

26A. **Medication P:**______________________ 41-42

a. How many times a day did your child get this medicine?______________ 43

b. When during the day did your child receive this medicine?______________ 44-49

____

c. For how long did your child receive this medicine?______________ 50-51

____

d. For what reason did your child receive this medicine?______________ 52-53

____ 54-55

____ 56-57

____

e. Why is your child no longer getting this medicine?______________ 58-59

____ 60-61

____

PART III: EFFECTIVENESS OF THE MEDICATION (HYPERACTIVITY) CARD 11

Directions: Be sure to remind parent of the disorder and medicine(s) this section refers to.

27. Does (*did*) the medication help your child?

Yes 1 15
No 2
Don't Know 3

28. Why do you think so?____________________ 16••17

______________________________ 18••19

____

29. Have (*did*) you had any problems with the medication? Did the medicine do anything you didn't want it to?

Yes 1 20
No (*Skip to Q.31*) 2

30. What problems have you had with the medicine(s)?____________ 21••22

______________________________ 23••24

______________________________ 25••26

______________________________ 27••28

31. Was your child hyperactive (overactive) before he/she started taking medicine?

Yes 1 29
No (*Skip to Q.33*) 2
Don't Know (*Skip to Q.33*) . 3

32. Has (*did*) the medication reduced your child's hyperactivity?

Yes 1 30
No 2
Don't Know 3

33. Has (*did*) the medication helped your child pay better attention to what he/she is doing?

Yes 1 31
No 2
Don't Know 3

34. Has (*did*) the medication helped your child follow directions?

Yes 1 32
No 2
Don't know 3

35. Had (*did*) the medication helped your child get along with other children better?

Yes 1 33
No 2
Don't Know 3

36. Does (*did*) your child tend to finish things he/she starts better than he/she did before receiving medication?

Yes 1 34
No 2
Don't Know 3

37. Do (*did*) you think the dosage or amount of medication should be changed?

Yes 1 35
No (*Skip to Q.39*) 2
Don't Know (*Skip to Q.39*) . 3

38. Why do (*did*) you think the dosage should be changed?__________ 36••37

______________________________ 38••39

______________________________ 40••41

____

39. Did anyone help you decide to see a doctor to see if medication would help your child, for example, a neighbor, relative, teacher, or a friend?

Yes 1 42
No (*Skip to Q.41*) 2

40. Who helped you decide?____________________ 43••44

______________________________ 45••46

41. Was your child taken off medication (*or when your child was still getting medication*) for a while to see if medication was still needed to help your child?

Yes 1 47
No (*Skip to Q.43a*) 2
Don't Know (*Skip to Q.43a*) . 3

42a. What happened?________________________ 48••49

______________________________ 50••51

____

42b. How long ago did this happen?__________________ 52••53

____

43a. Did anyone suggest to you that your child should be taken off medication for a while to see if medication was still needed to help your child?

Yes 1 54
No (*Skip to Q.43c*) 2
Don't Know (*Skip to Q.43c*) . 3

43b. Who suggested that you do this?________________ 55--56

____

43c. Did your child receive any medication for convulsions or seizures during the school year?

Yes (*Skip to Q.44*) 1 57
No (*Skip to Q.79*) 2

PART III: EFFECTIVENESS OF THE MEDICATION (CONVULSIVE DISORDERS) CARD 12

Directions: Be sure to remind the parent of the disorder and medicine(s) this section refers to.

44. Does (*did*) the medication help your child?

Yes 1 15
No 2
Don't Know 3

45. Why do you think so?________________ 16--17

________________ 18--19

____

46. Have (*did*) you had any problems with the medication? Did the medicine do anything you didn't want it to?

Yes 1 20
No (*Skip to Q.48*) 2

47. What problems have (*did*) you had with the medication?________________ 21--22

________________ 23--24

________________ 25--26

________________ 27--28

48. Has your child ever had a seizure or convulsion?

Yes (*Skip to Q.50*) 1 29
No 2
Don't Know 3

49. For what reason is (*did*) your child receiving medication?________________ 30--31

________________ 32--33

________________ (*Skip to Q.55*)

50. Did the doctor give any particular name for the seizures or convulsions?

Yes 1 34
No (*Skip to Q.52*) 2
Don't Know (*Skip to Q.52*) . 3

51. What name did the doctor give?________________ 35--36

____

52. Does your child still have seizures or convulsions?

Yes 1 37
No (*Skip to Q.54*) 2
Don't Know (*Skip to Q.54*) . 3

53. How often does your child have a seizure or convulsion?____________ 38-39

____________________________(*Skip to Q.58*) 40-41

54. When was the last time your child had a seizure or convulsion?__________ 42-43

____

55. Was your child taken off medication (or when your child was still getting medication) for a while to see if medication was still needed to help your child?

Yes 1 44
No (*Skip to Q.57a*) 2
Don't Know (*Skip to Q.57a*). 3

56a. What happened?____________________________ 45-46

____________________________________ 47-48

____

56b. How long ago did this happen?____________________ 49-50

____

57a. Did anyone suggest to you that your child should be taken off medication for a while to see if medication was still needed to help your child?

Yes 1 51
No (*Skip to Q.58*) 2
Don't Know (*Skip to Q.58*) . 3

57b. Who suggested?______________________________ 52

58. Does (*did*) your child just have seizures or convulsions when he/she has a fever?

Yes 1 53
No 2
Don't Know 3

	Yes	No	Don't Know	
59a. Do you think your child is (*was*) more sleepy or drowsy than other children?	1	2	3	54
b. (*If yes*) Was your child sleepy or drowsy before receiving medication?.	1	2	3	55
60a. Does (*did*) your child have more blank stares than other children?	1	2	3	56
b. (*If yes*) Did your child have these blank stares before receiving medication?	1	2	3	57
61a. Does (*did*) your child appear to be off in another world more than other children?	1	2	3	58
b. (*If yes*) Did your child appear to be off in another world before receiving medication?	1	2	3	59

	Yes	No	Don't Know	
62a. Does (*did*) your child have poorer coordination or balance than other children?	1	2	3	60
b. (*If yes*) Did your child have poorer coordination or balance before receiving medication?	1	2	3	61
63a. Does (*did*) your child appear to be more confused than other children?	1	2	3	62
b. (*If yes*) Did your child appear to be confused before receiving medication?	1	2	3	63

64. Do (*did*) you think the dosage or amount of medication should be changed?

Yes 1 64
No (*Skip to Q.66*) 2
Don't Know (*Skip to Q.66*) . 3

65. Why do you think the dosage should be changed?__________________ 65-66

____________________________________ 67-68

____

____

66a. Did anyone help you decide to see a doctor to see if medication would help your child, for example, a neighbor, relative, teacher, or a friend?

Yes 1 69
No (*Skip to Q.67*) 2

66b. Who helped you decide?____________________________ 70-71

____________________________________ 72-73

67. Did your child receive medication during the school year to help with overactive behavior or hyperactivity?

Yes (*Skip to Q. 27*) 1
No (*Skip ~~to~~ Q.79*) 2

CARD 13

PART III: EFFECTIVENESS OF THE MEDICATION (GENERAL)

Directions: Be sure to remind the parent of the disorder and medicine(s) this section refers to.

68. Does (*did*) the medication help your child?

Yes 1 15
No (*Skip to Q.70*) 2
Don't Know (*Skip to Q.70*) 3

69. Why do you think so? ________ 16··17

________ 18··19

____

____

70. Have you had any problems with the medication? Did it do anything you didn't want it to?

Yes 1 20
No (*Skip to Q.72*) 2

71. What problems have you had with the medication? ________ 21··22

________ 23··24

________ 25··26

________ 27··28

72. Do (*did*) you think the dosage or amount of medication should be changed?

Yes 1 29
No (*Skip to Q.74*) 2
Don't Know (*Skip to Q.74*) 3

73. Why do you think the dosage should be changed? ________ 30··31

________ 32··33

____

74. Did anyone help you decide to see a doctor to see if medication would help your child, for example, a neighbor, relative, teacher, or a friend?

Yes 1 34
No (*Skip to Q.76a*) 2

75. Who helped you decide? ________ 35··36

________ 37··38

76a. Was your child taken off medication (or when your child was receiving medication) for a while to see if medication was still needed to help your child?

Yes 1 39
No (*Skip to Q.77a*). 2

76b. What happened? ________ 40··41

________ 42··43

________ 44··45

____

77a. Did anyone suggest to you that your child should be taken off medication for a while to see if medication was still needed to help your child?

Yes 1 46
No (*Skip to Q.78a*). 2
Don't Know (*Skip to Q.78a*). 3

77b. Who suggested that to you? ________ 47··48

78a. Did your child receive any medication during the school year to help control overactive behavior or hyperactivity?

Yes (*Skip to Q.27*). 1
No (*Skip to Q.78b*). 2

78b. Did your child receive any medication during the school year to help with seizures or convulsions?

Yes (*Skip to Q.44*) 1
No (*Skip to Q.79*) 2

CARD 14

PART IV: MONITORING THE MEDICATION

79. When was the last time the doctor that prescribed the medication for your child actually saw your child?

____ 15··16

____ 17··18

80. How often does the doctor that prescribed medication for your child see your child (in months or years)? 19··20

____ 21··22

81. How often do you talk with the doctor on the telephone?______________ 23··24

____ 25··26

____

82. How are appointments with the doctor made? Does he call you or do you call for an appointment when you think it is time for one?

____ 27··28

____ 29··30

83a. Did the doctor say you could change the dosage when you thought your child needed more or less medication?

Yes 1 31
No 2
Don't Know 3

b. Comment________________________________

____

84a. Do (*did*) you give extra medication or at special times when you think your child needs it?

Yes 1 32
No 2

b. Comment________________________________

____

85. Do (*did*) you ever forget to give medication to your child?

Yes 1 33
No (*Skip to Q.87*) 2

86. During a typical week (month if appropriate), how often would you forget?

____ 34··35

____ 36··37

---

87. Does (*did*) the doctor ask how your child is doing in school?

Yes 1 38
No 2
Don't Know 3

88. Does (*did*) your child receive medication every day the year around?

Yes (*Skip to Q.90*) 1 39
No (*Skip to Q.89*) 2
Don't Know (*Skip to Q.90*) . 3

89. When does (*did*) your child *not* receive medication?______________ 40··41

____ 42··43

____

PART V: PROBLEMS

90. Have you had any problems with the doctor that prescribed medication. Are there things you wish the doctor would do differently?

Yes 1 45
No 2

91. (*Explain*)________________________________ 46··47

____ 48··49

____ 50··51

____ 52··53

____ 54··55

____

92. Have you had any problems with your child's teacher or the school? Are there things you wish they would do differently?

Yes 1 56
No 2

93. (*Explain*) ________________________________ 57··58

____ 59··60

____ 61··62

____ 63··64

____ 65··66

____

____

94. Do you have any questions concerning the medication that you wish someone would answer?

Yes 1 67
No *(Skip to Q.96)* 2

95. *(Explain)*____ 68··69

____ 70··71

____ 72··73

____ 74··75

____ 76··77

____

____

____

96. Thank you for your cooperation.

97. Would you please return the *Children's Medication Chart* to us as soon as possible so we may send the *Chart* to other parents. Just put the *Chart* in the large brown envelope we sent you. No stamp is needed. Thank you again.

Purpose of the Study: We are interviewing parents of preschool-aged children all over the State of Illinois to find out the medicines that are prescribed by doctors for young children. We also want to know what parents think about how well these medicines work. This information is going to be used to train doctors and teachers so they can better work with young children receiving medicine.

Time Ended________________________

APPENDIX O

DRUGS AND SPECIAL EDUCATION: A GRADUATE COURSE OUTLINE

Developed 1975 by Robert L. Sprague and Kenneth D. Gadow at the Institute for Child Behavior and Development, University of Illinois, 51 Gerty Drive, Champaign, Illinois.

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(2) Honigfeld, G., & Howard, A. *Psychiatric drugs: A desk reference*. New York: Academic Press, 1973.

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IV. Topics

1. Organization

Discussion of texts: Abel, 1974; Baird, 1972; Honigfeld & Howard, 1973; Safer & Allen, 1976; Stewart & Olds, 1973.

Information sources: Goodman & Gilman, 1975; Griffenhagen & Hawkins, 1971; Klein & Davis, 1969; *Physician's Desk Reference* (most recent edition); Usdin & Efron, 1972.

Unfortunately, there has yet to be written a satisfactory and comprehensive text about drug therapy with children. As a result, students are encouraged to acquire several different textbooks. Safer and Allen's *Hyperactivity: Diagnosis and Management*, and Ross and Ross', *Hyperactivity: Research, Theory and Action*, have the best and most comprehensive discussions of hyperactivity of the books presently available in print. For the parental perspective, Stewart and Olds', *Raising a Hyperactive Child* and Wender's, *The Hyperactive Child: A Handbook for Parents* are useful books. In regard to convulsive disorders, we have found that Livingston's, *Living with Epileptic Seizures* and Baird's, *The Child with Convulsions: A Guide for Parents, Teachers, Counselors, and Medical Personnel* are good texts for teachers. Boshes and Gibbs', *Epilepsy Handbook*, is a very readable reference, and Livingston's, *Comprehensive Management of Epilepsy in Infancy, Childhood, and Adolescence* is one of the most detailed and authoritative books available about convulsive disorders of childhood and drug therapy. For all other disorders discussed students must read selected articles and papers placed on reserve in the library. It is recommended that students acquire an elementary background text on psychiatric drug usage, Honigfeld's, *Psychiatric Drugs: A Desk Reference*, and, for students interested in a more detailed discussion of neuropharmacology, Abel's, *Drugs and Behavior: A Primer in Neuropharmacology* is suggested. This session also includes an introduction to a number of reference books on psychotropic drugs, e.g., Goodman and Gilman's, *The Pharmacological Basis of Therapeutics* and the *Physician's Desk Reference* which are also placed on reserve in the school library. Collections of abstracts that include drug research and related articles, e.g., *Psychopharmacology Abstracts*, *Cumulative Index Medicus*, *Psychology Abstracts*, and *Psychopharmacology Bulletin*, are described.

2. Introduction to psychopharmacology: Bevan, 1976; Goldstein, Aronow, & Kalman, 1974; Honigfeld & Howard, 1973; Iverson & Iverson, 1975; Mandell & Mandell, 1969; Rech & Moore, 1971; Sleator & Sprague, 1977; Sprague & Werry, 1974.

A general background in the area of psychopharmacology is presented through an explanation of basic concepts and principles of drug action. Included are the processes of absorption, distribution, metabolism, and excretion of drugs and the variety of other variables that effect the organism's response to medication. Among the concepts discussed are dose-response, synergism, rebound effect, toxicity, washout, tolerance, dependence, titration, state dependency, therapeutic index, serum levels, mg/kg, etc. Different classification schemes for psychotropic and anticonvulsant drugs are discussed, characteristics of drug classes, and introductory remarks about the drugs frequently prescribed for children.

3. Brief introduction to neurophysiology and neurotransmitters: Abel, 1974; Lytle, Moskowitz, & Strauss, 1976; Ray, 1972; Rech & Moore, 1971.

Although the emphasis of the course is on the behavioral effects of drug therapy, the question of why these drugs have the effects they do is frequently asked. An elementary discussion of the nervous system is followed by explanations of the structure of the neuron, synapse, neurotransmitters, and possible ways drugs may effect the production, secretion, and reabsorption of neurotransmitters.

4. Methodology of psychopharmacological research with an emphasis on the effects of drugs on school performance and learning in children: Clark & del Guidice, 1970; Levine, Schiele, & Bouthilet, 1971; Sprague & Werry, 1971.

Until recent years, research with psychotropic drugs and children could be considered as lacking in even the fundamentals of good research procedures. Six minimal criteria for adequate research methodology are discussed: placebo control, random assignment of subjects, double blind, standardized evaluations, appropriate statistical analysis, and dosage manipulations. Also discussed are three research designs: parallel groups, within subjects, and single subject. The objective of this session is to give students guidelines for evaluating drug research articles they may encounter in the course of their careers.

5. Drug industry: Silverman & Lee, 1974.

Because the drug industry is involved in the development of new drugs, basic research on drugs, and promotion of new products, it relates directly to the use of medication with children. The discussion follows the development of the modern drug industry, advances in drug treatment of many diseases, procedures for developing new products, marketing techniques, advertising products in medical journals, detail men, profit of the industry, and the controversy surrounding trade name and generic manufacturers.

6. Hyperactivity and minimal brain dysfunction: Ross & Ross, 1976; Safer & Allen, 1976; Schrag & Divoky, 1975; Stewart & Olds, 1973; Wender, 1971, 1973; Whalen & Henker, 1976.

7. Drug management of hyperactivity--Dosage, number of administrations, side effects, and length of treatment: Katz, Sarof, Gittelman-Klein, & Klein, 1975; Safer & Allen, 1976; Sleator & von Neumann, 1974; Sprague & Sleator, 1973, 1975; Sprague, & Werry, 1974; Wender, 1973.

8. Other therapies for hyperactivity: Christensen, 1975; Douglas, 1972, 1975, 1976; Feingold, 1974; O'Leary, 1976; Stewart & Olds, 1973; Sulzbacher, 1973.

These three sessions cover the area of hyperactivity including etiology, prevalence, diagnosis, drug and non-drug treatment modalities. A considerable portion of the discussion is based on research studies with hyperactive children. Topics include the drugs used in the management of the disorder, their side effects, dosages, and interactions with other drugs. Special attention is placed on the role of the teacher in all phases of the drug regimen. The importance of other therapeutic measures concomitant with drug therapy is stressed. A thorough treatment of the management of hyperactive children, for example, would include behavior modification techniques, parent training skills, task analysis, prescriptive teaching, etc. However, time limitations plus the fact that other courses in the teacher training program deal almost exclusively with these topics account for their exclusion.

9. Convulsive disorders: Boshes & Gibbs, 1972; Gastaut, 1970; Livingston, 1972.

10. Drug management of convulsive disorders: Livingston, 1972; Matthews & Harley, 1975; Millichap, 1969; Reynolds, 1975; Stores, 1975; Woodbury, Penry, & Schmidt, 1972.

11. Convulsive disorders: Social and emotional development: Baird, 1972; Crowther, 1967; Goldin, Perry, Margolin, Stotsky, & Foster, 1971; Livingston, 1963, 1972; Ounsted, 1955.

The frequency with which convulsive disorders are found among special education population merits this lengthy discussion. As with hyperactivity, the major topics are etiology, prevalence, diagnosis, and treatment. Because of the importance of drug therapy for the management of this disorder, a considerable portion of the topic focusses on the drugs, dosage levels, serum levels, side effects, and the appropriate drugs for the different seizure disorders from the standpoint of safety and efficacy. The role of the teacher in the drug regimen is a central theme which includes social-emotional problems the epileptic may encounter both in childhood and as an adult. Special emphasis is placed on the management of seizures in the classroom.

12. Use of psychotropic drugs with the mentally retarded: Freeman, 1966, 1970a, 1970b; Lipman, 1970; Sprague, 1976; Sprague & Werry, 1971, 1974; Werry & Sprague, 1972.

Although drug therapy is often used with this population of exceptional children, especially in residential settings, very little research or survey data on actual practices actually has been done. Much of what is known about the use of these drugs has been extrapolated from the psychiatric literature. Of specific import to this topic is the potential for the misuse of drugs with the mentally retarded, the inability of the child to express verbally side effects, and tardive dyskinesia, a very serious consequence of some psychotropic drugs which is manifested by involuntary, fragmented movements. The effects of tranquilizers and their potential for impairing cognitive performance is a critical issue. Survey data of drug therapy from residential settings collected by our staff and recent litigation regarding the misuse of drug therapy with residents are among the topics discussed.

13. Drug therapy for cerebral palsy, enuresis, separation anxiety, autism, and childhood schizophrenia: Blackwell & Currah, 1973; Campbell, 1975a, 1975b; Denhoff, 1975; Domino, 1974; Engelhardt, Polizos, & Waizer, 1975; Gittelman-Klein, 1975; Sleator & Sprague, 1977.

The use of Tofranil for enuresis and separation anxiety, skeletal muscle relaxants for cerebral palsy, and a variety of drugs used in the management of autism and childhood psychosis are all topics in this section. Non-drug therapies are discussed briefly where appropriate. Major emphasis is on the drugs prescribed and their effects.

14. Alternatives to drug therapy with an emphasis on behavior modification: Ayllon, Layman, & Kandel, 1975; Christensen, 1975; Greenberg, Altman, & Cole, 1975; O'Leary, 1976; Sulzbacher, 1973; Zlutnick, Mayville, & Moffat, 1975.

The focus of this discussion is on research studies that involve children receiving medication and/or therapies to be used in lieu of, or in conjunction with, medication. Because of methodological problems, direct studies comparing the efficacy of medication versus behavior modification or the relative benefits of each in combination are few. Considerable research remains to be done in this area. This is considered as a separate topic because of the importance of a total therapeutic approach to the child's problems.

15. Fads, issues, and controversy: Cott, 1972; Divoky, 1973; Freeman, 1976; Feingold, 1974; Grinspoon & Singer, 1973; Hentoff, 1970; Ott, 1976; Schrag & Divoky, 1975; Silver, 1975; Walker, 1974.

Because the teacher is often exposed to sensationalistic and unscholarly discussions of hyperactivity in popular magazines, many aimed at teachers as a market. it is important to identity the common misconceptions as well as discuss controversial issues surrounding drug therapy. The primary focus is the distortions of fact that are frequently reiterated.

16. Role of the teacher, school district policy, and legal implications for the use of psychotropic drugs: Birch, 1974; Gadow, 1976a, 1976b; Robin & Bosco, 1973, 1976; Sprague & Gadow, 1976; Weithorn & Ross, 1975.

The material in this session includes discussions of the challenges facing the teacher in regard to the ambiguities of her role, the establishment of liaisons with the medical community, and the student's potential role as an educator of fellow staff members. The course must culminate on this basis; the students are being trained for a role that is not explicitly stated in school policy or commonly adhered to in everyday practice.

V. Films

A. Hyperactivity

1. Bobby: The Story of a Child with MBD (produced by Abbott Laboratories)

   Inquire at: Abbott Laboratories
   Pharmaceutical Products Division
   North Chicago, IL 60064

2. "You're Not Listening" (produced by CIBA Pharmaceutical Company)

   Available from: Modern Talking Picture Service, Inc.
   2323 New Hyde Park Road
   New Hyde Park, NY 11040

B. Convulsive Disorders

1. Modern Concepts of Epilepsy (produced by Ayerst Laboratories)

   Inquire at: Ayerst Laboratories
   685 Third Avenue
   New York, NY 10017

2. Diagnosis and Medical Management of Epileptic Seizures (produced by Ayerst Laboratories)

   Inquire at: Ayerst Laboratories
   685 Third Avenue
   New York, NY 10017

3. Complex Partial Seizures (produced by Geigy Pharmaceuticals)

   Inquire at: Geigy Pharmaceuticals
   Ardsley, NY 10502

VI. Guest Speakers

Pediatrician
Neurologist
Detail Man
Researchers in Psychopharmacology
School Personnel

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APPENDIX P

DISCUSSION GUIDE FOR THE DEVELOPMENT OF A SCHOOL POLICY
ABOUT THE USE OF DRUG THERAPY WITH SCHOOL CHILDREN

Developed 1976 by Kenneth D. Gadow, Institute for Child Behavior and Development, University of Illinois, 51 Gerty Drive, Champaign, Illinois 61820

PROCESSES

DIRECTIONS:

A. The following list of processes is presented to give you ideas about what to consider when analyzing each aspect of drug treatment: diagnosis, dosage adjustment, and follow-up including prediagnostic procedures (determination of the need for treatment, educational assessment, and referral), and postmedication treatment.

B. It should be pointed out that the decisions and behavior of the people involved in these processes will be shaped to a considerable degree by their attitudes, beliefs, previous experiences, and personal philosophies. A considerable amount of conflict may be generated in deciding what is best for a particular child. Your school policy should identify areas of probable disagreement and procedures for their solution.

C. The effectiveness of a treatment procedure may be influenced to a considerable degree by the attitudes of the participants. A statement regarding school procedure should consider this as a potential source of conflict.

PROCESSES:

1. Determination of the Need for Treatment
2. Identification of Target Behaviors, Treatment Objectives, and Etiology if Possible
    a. Should be truly comprehensive describing as many of the child's problems as possible in behavioral terms
    b. Should consider differences in environmental settings
3. Evaluation of the Effectiveness of Treatment
    a. How effective in terms of specific target behaviors?
    b. Bias should be minimized.
    c. How effective is the treatment in terms of all target behaviors?
    d. If treatment is not effective, loses effectiveness over time, etc., what next?
4. Determination of Safety and Efficacy: The Cost-Benefit Ratio
    a. The treatment should be no more dangerous or distressing than the disorder being treated.
    b. There may be considerable variation in perceptions of "danger" and "distress" across people, settings, and times.

DIRECTONS: Group Members

1. Each study group will analyze and develop a school policy for a specific phase of drug therapy to inlcude referral, behavioral monitoring, and postdrug therapy procedures.
2. Each phase is presented in outline form with suggested procedures, considerations, and possible problems that may arise. NOTE: These are included as discussion guides only. The policy you develop should reflect what your study group has decided.
3. Develop a school policy for your designated aspect of drug treatment; be specific. Be sure to include procedures for solving problems that may occur.
4. In those situations in which your group cannot reach a consensus, put the most agreed upon procedure in the policy statement listing dissenting opinions as alternative approaches.
5. The outline focuses primarily on the role of the school. Procedures listed for the doctor describe an "ideal" treatment approach.
6. Work as rapidly as a thorough analysis will permit.

DIRECTIONS: Discussion Leader

1. Keep the group on track by focusing discussion on your specific aspect of the school policy.
2. On issues which group agreement is improbable, suggest the recording of alternative procedures which reflect the opinions of dissenters.
3. Be sure the analysis is thorough. Direct participants to the section titled, "Processes," asking which items in the suggested procedures, considerations, and possible problems can be further analyzed in terms of these processes.

DIRECTIONS: Recorder

1. List your policy suggestions in terms of specific behaviors and individuals when appropriate.
2. Policy statements should be succinct and to the point.
3. Where possible, code each policy item by its corresponding outline number in the discussion guide and whether it was a suggested procedure, consideration, or problem. (If much of what you discuss is not in the discussion guide, disregard this request.)
4. The policy does not have to be in the exact temporal or procedural order, but do your best, either with arrows or numbers, to indicate sequence if this is an important consideration.

5. **Information: What is Communicated**
    - a. What terms and expressions are used?
    - b. How is the accuracy and validity of information assessed?
    - c. How is information updated?

6. **Communication:**
    - a. Who tells what to whom?
    - b. Who initiates conversation?
    - c. Under what circumstances is communication reestablished and who initiates?
    - d. How is the information communicated?

OUTLINE FOR SCHOOL POLICY DISCUSSION

I. Referral
- A. Procedures
    - 1. Preeducational assessment
        - a. Teacher-parent conferences
        - b. Switch child to another teacher
        - c. Change teacher expectations
        - d. Learn how to cope with child's behavior
    - 2. Referral for educational assessment
    - 3. Educational assessment (staffing)
    - 4. Possible recommendations following an educational assessment
        - a. Self-paced materials
        - b. Individualized instruction
        - c. Resource room
        - d. Behavior modification
        - e. Partial placement
        - f. Special education (may be preceded by medical referral)
    - 5. Special education child
        - a. Referral for medical evaluation (staffing)
        - b. Referral for residential placement (staffing)
    - 6. Medical referral (staffing)
- B. Considerations
    - 1. Due process for special treatment services
    - 2. Structure of referral
        - a. Staffing
        - b. Members of staffing
        - c. Leader of staffing

d. Who informs parent of staffing recommendations?

e. How are parents informed?

f. What are parents told?

g. Are parents participants in the staffing?

3. Assessment of the effectiveness of educational intervention

4. Upon what outcome is medical referral contingent?

5. How is the incompetent parent managed? Who will see the child receives the necessary services?

6. Should school imply a diagnosis in their referral, for example, say the child is hyperactive, epileptic, etc.?

7. Should school officials state the name of a medication in their referral suggestions?

8. Should schools suggest the name of a particular physician, clinic, group practice, or hospital or refer the parent to a particular diagnostic facility? Does it make a difference if this information is requested or not?

9. Under what circumstances, if any, should the school pressure parents into seeking treatment? What pressure is permissible, e.g., suggestion contained in a referral?

C. Possible Problems

1. Referral may come later than it should.

2. Schools may fail to refer children for either educational or medical assessment or, conversely, over refer.

3. Parent may not respond to referral suggestions.

4. Any participant in the referral process or staffing may balk at the recommendations of the group.

II. Medical Diagnosis

A. Procedures

1. Teacher completes diagnostic evaluation of child's behavior (annecdotal report, rating scale, standardized rating scale, time sampling) for doctor.

2. Physician recommends medication (see dosage adjustment phase).

3. Physician diagnosis is negative.

4. Physician blames teacher for inability to handle child.

5. Physician finds evidence of dysfunction but does not recommend medication.

B. Considerations

1. What if parent refuses the treatment plan suggested by the physician? (Parent neglect, child abuse?)

2. Should school pressure parent to follow suggestions of the physician?

3. If parent refuses drug trial, what should be the school's response to the child's problems?

4. If child is placed in regular classroom without any treatment procedures for his/her problems, what are the rights of the other parents if the child is particularly disruptive, aggressive, and/or assaultive?

C. Possible Problems

1. School is not involved in the diagnostic process even though child was referred for medical evaluation.

2. School is not involved because child receives diagnosis on parents' initiative.

3. Physician does not ask for school input in the diagnosis.

4. School is not informed that the child is being considered for medical evaluation.

5. School is not involved in the diagnosis and physician recommendations go contrary to school perceptions of therapeutic needs.

6. Parent refuses treatment for child (militancy, parent neglect, child abuse?).

III. Dosage Adjustment

A. Procedures

1. Evaluation of the effectiveness of different dosages on the child's target behaviors

2. Parents informed of the therapeutic and toxic effects of the medication

3. School informed of the therapeutic and toxic effects of the medication

4. Reason for medication is explained to the child

5. School informed of the name of the medication

6. Side effects observed by school personnel are reported

7. If medication not effective, search for an effective drug

8. Child unresponsive to drug therapy, other treatment procedures investigated and evaluated

B. Considerations

1. What should the school do if not asked to be a part of the evaluation of the medication?

2. How can the school acquire information about the medication if not supplied voluntarily?

3. Who should supply the school with information about the medication?

4. How can the school differentiate which side effects are self limiting, can be managed by dosage adjustment or gradual reintroduction, undesirable but must be tolerated from the standpoint of cost-benefit ratio, and those that are truly serious medical problems?

5. Through what channels should response to drug treatment be reported?

6. What should the child and parent be told about the medication(s)?

7. Under what circumstances can the school contact the child's physician and provide information about the child's behavior?

8. Can school initiate contact with the physician?

C. Possible Problems

1. School personnel are not asked to evaluate the medication.

2. School personnel are not informed of the drug trial.

3. School personnel are not informed of the therapeutic and side effects of the medication.

4. School personnel do not have general information or sources of information about therapeutic and side effects.

5. Child's school performance is impaired by the medication.

6. The medication is not effective.

7. Parents are inconsistent in the administration of the medication making evaluation difficult.

8. Parents are not informed about the medication both in terms of what to expect as therapeutic response, how to administer the medication, importance of compliance, and the termination of drug therapy.

9. Medication is not given an adequate trial.

IV. Follow-up of Drug Treatment

A. Procedures

1. Monitoring the possibility of long term side effects

2. Drug-free holidays to assess the continued need for medication, dosage adjustment, and possible termination of drug therapy

3. Development of other treatment strategies to use concomitantly with drug therapy

4. If appropriate, lower dosage as alternative therapeutic measures become more effective in treating problems

5. Training parents on how to manage the child's behavior in the home and generalize school treatment efforts to the home setting

6. Administration of medication at a school

   a. Storage of medication at school

   b. Differential storage of controlled substances, prescription and nonprescription medication

   c. Giving medication to a child: permission forms and directions

7. Evaluation of the effectiveness of concomitant treatment approaches

B. Considerations

1. How should the suspicion of long-term deleterious effects of medication be reported?

2. How are concomitant treatment methods initiated and directed?

3. What should be done if drug-free holidays are not a part of the follow-up procedure to assess the continued need for medication?

4. What should be done if the child's response to medication is changing?

5. Who should administer medication at school?

6. How should the administration of medication at school be handled?

7. Under what circumstances should medication be administered at school (approval forms, permission letters, instructions for administration)?
8. How should medication be stored at school?

C. Possible Problems

1. Child does not receive drug-free holiday to assess continued need for medication.
2. Parents administer medication in an irregular manner and/or run out of medication (financial burden, parent neglect, child abuse?).
3. School not involved in the evaluation of the child's behavior during the drug-free period.
4. Parents unresponsive or incompetent in using other therapuetic measures in the home or in generalizing educational objectives.
5. Administration of medication during school is embarassing for the child.
6. Child does not take medication (throws pill away, etc.).
7. Parent unwilling to try alternative treatment measures.
8. Over or under medicating child by parent.
9. Parent terminates medication on own initiative (in some cases parent neglect or child abuse?).

V. Child Receiving Medication at Enrollment

A. Procedures

1. Receive information about the medication, reason for administration, etc.
2. Cooperate with child's doctor in the follow-up phase of drug treatment
3. Drug-free holiday to establish treatment objectives for the child and plans for concomitant treatment measures
4. Acquire permission to share information with the physician

B. Considerations

1. How is communication with the child's doctor established?
2. How does school communicate willingness to cooperate with the doctor?
3. Can school suggest the establishment of a drug-free holiday?
4. What should be done to acquire the necessary information about medication?

C. Possible Problems

1. School is not informed that the child is receiving medication.
2. Physician does not wish to cooperate with the school.
3. Parent does not want to place child on a drug-free period.
4. Parent unresponsive to requests for medical information.
5. Questionable that child should be receiving medication.
6. School personnel uncertain what are side effects of medication and what are the child's problems.

V. Post-drug Treatment

A. Procedures

1. Reevaluation of treatment objectives
2. Continuation of non-drug treatment procedures
3. School notified that medication is going to be terminated

B. Considerations

1. How should a child taken off medication be reevaluated?
2. How are treatment procedures developed or modified?

C. Possible Problems

1. Child is not reevaluated.
2. Child's problems are not attended to.

    3. Can school suggest the establishment of a drug-free holiday?
    4. What should be done to acquire the necessary information about medication?

  C. Possible Problems

    1. School is not informed that the child is receiving medication.
    2. Physician does not wish to cooperate with the school.
    3. Parent does not want to place child on a drug-free period.
    4. Parent unresponsive to requests for medical information.
    5. Questionable that child should be receiving medication.
    6. School personnel uncertain what are side effects of medication and what are the child's problems.

V. Post-drug Treatment

  A. Procedures

    1. Reevaluation of treatment objectives
    2. Continuation of non-drug treatment procedures
    3. School notified that medication is going to be terminated

  B. Considerations

    1. How should a child taken off medication be reevaluated?
    2. How are treatment procedures developed or modified?

  C. Possible Problems

    1. Child is not reevaluated.
    2. Child's problems are not attended to.

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